

CLIMAX

STUDIOS

VR+AR+MR

Samsung
Gear VR


Daydream


Project Tango


VIVE
htc | STEAM VR

PlayStation.VR

Google Cardboard


oculus



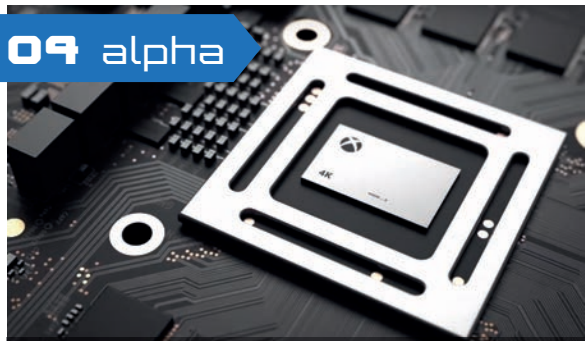
16 beta 47 build



HEAR, HEAR

We speak to experts from across the world of games audio, from masters of aural design to the tech firms offering the latest in high-fidelity sound, to find out how to make your game music to players' ears

04 alpha



WILL DEVS SINK THEIR CLAWS INTO SCORPIO?

Game creators offer their thoughts on the prospects for Microsoft's super-powered Xbox One

16 beta



VOX POP STARS

Voice actors Troy Baker, David Hayter and Elias Toufexis discuss their changing roles in games

07 alpha



BRIGHTON'S BEST

Your guide to the must-see talks and stands at this year's conference

11 beta



ADVENTURE TIME

Ron Gilbert takes us to *Thimbleweed Park*

60 build



SHIP IT

Game Labs reveals how it brought *Naval Action* to life

ALSO • 06 Diary Diates • 08 Opinion • 36 Studio Spotlight • 39 Jobs • 64 Post-Mortem • 66 Coda

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Editorial

BREXIT STRATEGY

It's official: the UK is to leave the EU. It's a massive event with global repercussions that millions of people will feel - for better or worse.



So, what could the effect on the games industry be?

One major aftershock for UK studios is that the cost of outsourcing work to European contractors could rise, as the pound loses value against the euro. In addition, development emigrants may find it harder to move to Britain should proposals of a points-based migration system come to fruition.

Trade bodies UKIE and TIGA have both called for the government to ensure financial support for devs such as Video Games Tax Relief continues, although such schemes' survival will depend on the strength of the economy. Other grants may also be harder to acquire. However, some of the UK's savings from halting its EU contribution may be reinvested into games.

“

Brexit could see the cost of outsourcing development work to European contractors rise.

Devs' ability to sell their games in Europe also looks set to change, as the EU introduces the Digital Single Market initiative aimed at knocking down trade barriers between countries - now excluding the UK. British firms may subsequently find it harder to offer their digital games and services across Europe. Despite this, the UK government could independently draw up its own trade guidelines, which may open up new opportunities tailored to games businesses.

These are but three of the numerous ways that things could change for devs and games firms, and whether they will be ultimately beneficial or detrimental remains unclear.

One thing is certain: Brexit is upon us, and devs inside and out of the UK are along for the ride with everybody else.

Matthew Jarvis

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BRIGHTON THE MONEY

We round up the must-see highlights of this year's event
P07

TIME TO SIGN UP?

Joost van Dreunen analyses Apple's App Store subscriptions
P08

DEATH OF THE DETAIL

Rival Games on what happens when an episodic title is cut short
P09

WHAT DOES XBOX'S PROJECT SCORPIO MEAN FOR DEVELOPERS?

The biggest news out of this year's E3 was almost certainly Microsoft's reveal that it has been working on an improved Xbox One, which it claims will be the 'most powerful console ever made'. But is better hardware actually a draw for devs? We ask a crowd of triple-A and indie studios for their thoughts

Six teraflops of GPU power, eight CPU cores, 320GB/s of memory bandwidth, 4K and VR support. The finale of Microsoft's E3 press conference pulled back the curtains on its long-rumoured Xbox One successor and, with it, a stream of technical stats and figures.

Speaking on-stage, Xbox chief Phil Spencer described Project Scorpio as the "world's most powerful console ever built" and said it would "lead the industry into a future in which true 4K gaming and high-fidelity VR are the standard, not an exception".

It all sounds very impressive, but questions remain. What will the new hardware actually allow devs to do? Will Scorpio be outdated by the time it arrives in late 2017? How will it compare to the PS4 Neo? Will two separate Xbox One specifications fragment the platform's audience – or limit creators building for both?

POWER PLAY

First thing's first: the technical opportunities Scorpio's touted hardware will open up for developers.

"More memory is always useful as it allows you to worry less about memory management and rely less on streaming," observes Jonathan Burroughs of Virginia studio Variable State.

“

More GPU power might allow more sophisticated real-time lighting and post-processing.

Jonathan Burroughs

"We don't have the resources to produce lots of high detail 3D assets, so geometry isn't likely to be a bottleneck for us, but more GPU power

will potentially allow us to use more sophisticated real-time lighting and post-processing. So that's attractive."

Playniac's Rob Davis adds that the *Anomaly X* studio will also make use of Scorpio's power to improve core gameplay technology.

"We're interested in using that extra processing power for smarter and

devs may find their options to take advantage of the faster machine limited.

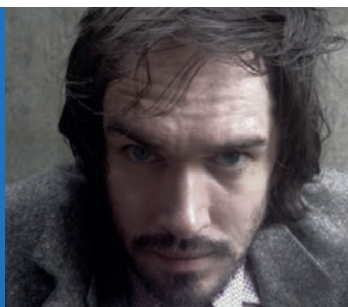
"The main problem and blessing I see with both Xbox Scorpio and PlayStation Neo is that you are required to make games that also work on the current generation," he explains.

"That means you can only use the extra power for more graphical fidelity and not on gameplay, such as more advanced physics simulations or AI.

"If you cannot make a game meant to run exclusively on these more powerful machines, I'm not sure how many developers will be interested in doing anything interesting with them other than providing a higher resolution and better framerate."

ALL FOR ONE

Unveiling the Scorpio, Spencer confirmed that "Xbox One, Xbox One S and Scorpio will all be compatible – all Xbox One games will play on each device".



That's great for players, but will Birke's fears that devs' technical aspirations will be held back by the need to cater for the older console be realised?

Xiotech Studios' Byron Atkinson-Jones agrees that "the specs for the Scorpio look impressive enough".

"However," he continues, "all of this is redundant if games have to be backwards-compatible with Xbox One.

"The power will just get used to throw 4K worth of graphics at the screen rather than to deliver better games."

Worse still, these minimal technical benefits could come at the cost of having to produce two individual versions of a single title. Davis allays concerns of a doubled workload.

"We won't be concerned about the extra work to develop for two separate Xbox One specs as long as the two separate specs remain software-compatible," he affirms. "We're comfortable with handling multiple specs on PC and mobile, so it should be no problem on console."

Despite this, Burroughs insists that developers should be prepared to invest more time and money.

"Any additional platform supported incurs development costs, even if it's just in terms of time spent deploying builds and testing," he warns. "If the Scorpio platform APIs are the same as the Xbox One's, then that should minimise the amount of additional compliance work that has to be done, which would be beneficial.

"For teams who have already invested in Xbox One development hardware, they will need to re-invest in new dev kits or risk being left behind. And there will be further costs for devs in terms of integrating and QA-ing a new platform.

"Rather than the hardware, it'll be the level of support Microsoft provides developers through programs like ID@Xbox that really makes a difference."

Four Circle Interactive co-founder Dan Pearce echoes Burroughs' worries.

"One of the irritating parts of developing for multiple platforms is accounting for things like TRC checks," he states. "This is already a bit of a roadblock for some indie developers and I can see multiple versions of the Xbox One and PS4 causing more of

those requirements to stack up.

"In the grand scheme of things, these

are minor problems to overcome providing that the dev kits issued by platform holders are well designed."

Outside of the development community, the arrival of a second Xbox configuration could be confusing for players unaware of the differences – or cross-compatibility – between the difference boxes.

“

Scorpio and Neo are opportunities for VR to become a common and viable platform.

Dan Pearce

Burroughs explains: "There is uncertainty about how the game-playing audience will react to Microsoft refreshing their console so soon after releasing the Xbox One.

"Will shorter hardware cycles make people cautious about upgrading? Will the Scorpio's adoption rate be low? I personally favour longer periods between hardware refreshes as it permits developers to establish stable workflows, without disruption, to minimise their costs and in the long term focus their efforts more on creative game design and less on adapting to new technology."

One of the most intriguing factors of the Scorpio is its potential to support virtual reality hardware. While Microsoft has primarily focused on its augmented reality technology HoloLens over a competitor to Sony's PlayStation VR, the company did bundle its Xbox One controller with the Oculus Rift on PC, hinting at future involvement in the sector.

VR OF THE SITUATION

Spencer's description of the Scorpio as suitable for "high-fidelity VR" has

to, so we are looking forward to hearing what Microsoft will announce in the space."

Tammeka producer Sam Watts adds: "Considering we are already on Oculus Rift and HTC Vive on PC and in the process of porting to PSVR, working with a Windows 10-based XboxVR system is an obvious choice."

Pearce says that in contrast to its potentially negligible effect on the appearance of conventional titles, "VR is where the Scorpio will probably provide the most noticeable shift".

"It will enable developers to provide more immersive visuals, which is great, but I'm hoping that the Scorpio and the Neo will expand the install base for VR and turn it into less of a novelty," he says.

"It's telling that we've not really heard of any VR games that have had massive financial success yet, but this could be the turning point. The Scorpio and Neo are opportunities for VR to become accessible and turn VR into a common, viable platform."

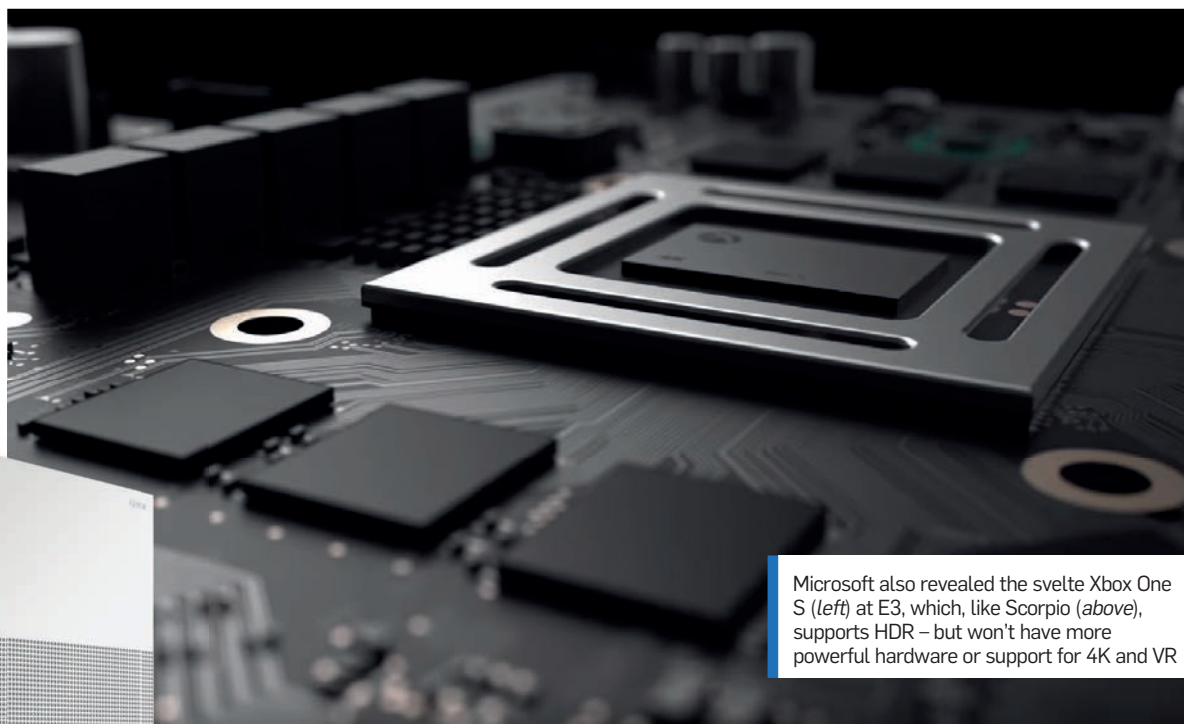
ONE TO WATCH

Although uncertainties remain, the majority of devs we spoke to are optimistic about Scorpio's prospects.

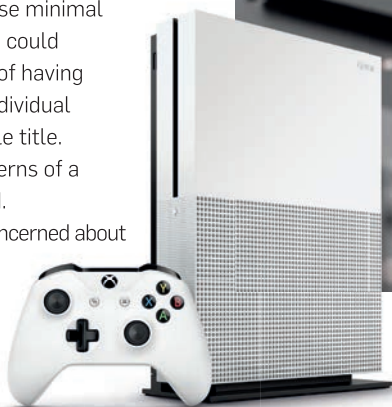
"I'm really stoked about it," enthuses Kwalee's James Horn. "They're going to have devs queuing out of the door."

For the pithy Kevin Patterson of Crows Crows Crows, however, at least one thing needs to change before Scorpio hits shelves: the name.

"It feels crass and inelegant," he says. "Like a pregnant swan thrown into a supermarket." ■



Microsoft also revealed the svelte Xbox One S (left) at E3, which, like Scorpio (above), supports HDR – but won't have more powerful hardware or support for 4K and VR



AT A GLANCE

**JULY 4TH****Independence Day**

Celebrate the outcome of years of war by watching a tepid movie sequel.

**JULY 8TH****Carmageddon: Max Damage**

Stainless Games' revival of the '90s vehicular combat classic hits consoles.

**JULY 11TH/15TH****Ghostbusters and... Ghostbusters**

The all-female reboot hits cinemas, followed by its video game spin-off.

**JULY 26TH****We Happy Few**

BioShock meets 1984 in this creepy survival title set in '60s Britain.

**JULY 29TH****Batman: Return to Arkham**

Bats is back in black in this remastered collection of Rocksteady's trilogy.

DIARY DATES

**SIGGRAPH**

July 24th to 28th

Los Angeles, US
s2016.siggraph.org

JULY**Taipei Game Developers Forum**

July 1st to 2nd
Taipei, Taiwan
tgdf.tw/en

Mobile Game Asia

July 13th
Kuala Lumpur, Malaysia
mobilegame.asia

Playful Learning

July 13th to 15th
Manchester, UK
conference.playthinklearn.net

Casual Connect USA

July 18th to 20th
San Francisco, US
usa.casualconnect.org

Nucl.ai

July 18th to 20th
Vienna, Austria
nucl.ai

Radius Festival

July 21st to 24th
Vienna, Austria
radiusfestival.com

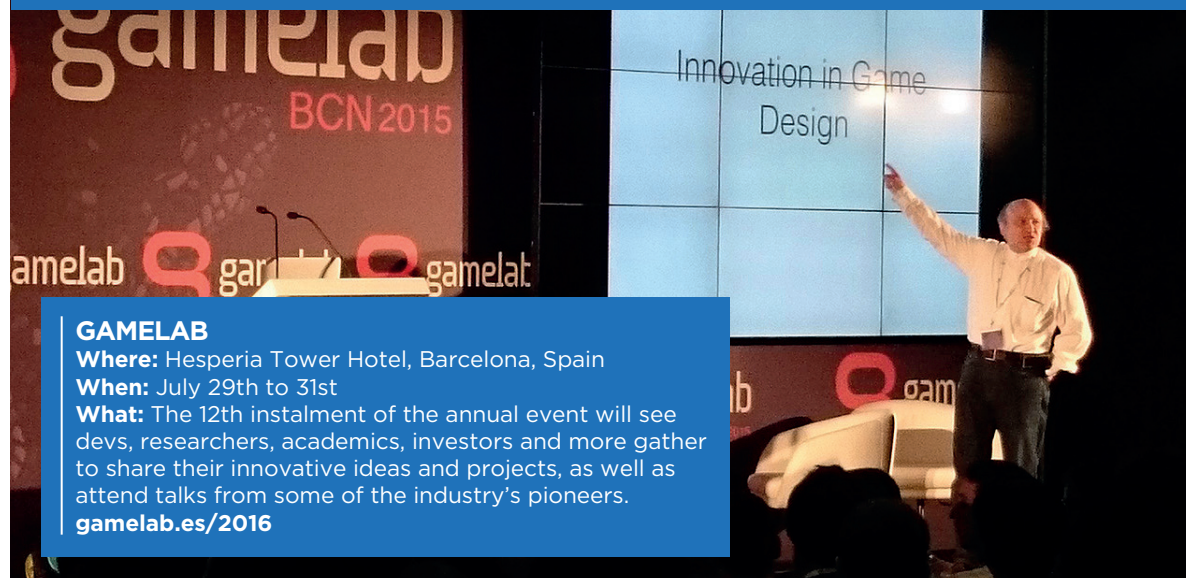
BIG Festival

July 25th to August 2nd
São Paulo, Brazil
bigfestival.com.br

Serious Play Conf

July 26th to 28th
Los Angeles, US
seriousplayconf.com

EVENT SPOTLIGHT

**GAMELAB**

Where: Hesperia Tower Hotel, Barcelona, Spain

When: July 29th to 31st

What: The 12th instalment of the annual event will see devs, researchers, academics, investors and more gather to share their innovative ideas and projects, as well as attend talks from some of the industry's pioneers.

gamelab.es/2016

COMING SOON

**DEVELOP #174****AUGUST 2016: THE GAMESCOM ISSUE**

If you're finding it hard to get your game noticed, we have just the thing: a series of features looking at the best ways to attract players and boost your presence online.

Elsewhere, we'll be previewing both Gamescom and GDC Europe, and looking ahead to the future of graphics tech.

**DEVELOP #175****SEPTEMBER 2016: THE ENGINES ISSUE**

The core of every game, we dive into the current offering of free and subscription-based engines available to devs. We'll also be asking work-for-hire experts for their advice on inking contracts and collaborating on major projects.

Plus, a look at effective – and secure – version management.

For editorial enquiries, please contact jbatchelor@nbmedia.com
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THE BEST OF BRIGHTON

Develop offers a round-up of the must-see sessions, keynotes and more at Tandem Events' annual conference



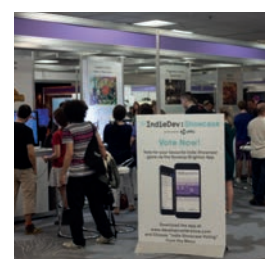
THE ESSENTIALS

When: Tuesday, July 12th to Thursday, July 14th

Where: Hilton Brighton Metropole Hotel, Brighton

■ More information can be found at www.developconference.com

■ Use discount code **DEV16NM** to get 10 per cent off all passes



THE KEYNOTES

Everything You Wanted to Know About Kickstarter (But Were Afraid to Ask)

Tues | 9.30am to 10.15pm | Room 5

Kickstarter's head of games Luke Crane is on hand to dispel myths and help developers better prepare for their crowdfunding campaigns.

Legends on the Future: Hideo Kojima in conversation with Mark Cerny

Weds | 9.30am to 10.15am | Room 2

Ahead of his award in the evening, Kojima discusses his career and inspirations with fellow Development Legend winner Mark Cerny.

Reach for the sky: Why disruptive technology deserves disruptive design

Weds | 10.15am to 10.45am | Room 2

Bossa Studios reflects on how breakthroughs in technology have changed not only the way games are developed, but also the type of titles devs can create.

Funomenal Feel Engineering

Thurs | 10am to 11am | Room 2

Funomena CEO and *Journey* producer Robin Hunicke discusses how devs can provoke emotions from their players as shown by the studio's upcoming game *Luna*.

DEVELOP AWARDS 2016

As always, *Develop* will be hosting its awards evening on the Wednesday at the Hilton Metropole's Oxford Suite. Kojima will receive the Development Legend award, while hundreds of studios compete for the usual prizes.

Book your place at www.developawards.com.

THE EXPO

A showcase of the latest demos, tech and more, running across both the Wednesday and Thursday.

New this year is a VR and AR gallery showing off what ambitious studios are accomplishing with this emerging technology. Meanwhile, the Develop Bar & Networking Lounge and Indie Showcase also return.

Exhibitors this year include: Audiokinetic, Autodesk, Boss Alien, GameSparks, NaturalMotion, Perforce, PlayStation, Soundcuts, Unity and Unreal.

WHAT'S NEW?

This year, Tandem has added a Virtual Reality track to the main conference and introduced two initiatives designed to help devs find finance for their projects.

The Games Funding Forum, another Tandem event, will run alongside the Evolve track on the Tuesday, as well as the new Pitching & Funding Workshop – an all-day masterclass in presenting your game to investors.

MUST-SEE SESSIONS



Pitching & Funding

Funding Models: What to raise and when

Tues | 11.15am to 12pm | Room 6

Execution Labs' Jason Della Rocca shares case studies that demonstrate the best ways to finance various types of video games.



Evolve

The Road to the Next Generation of Development: HoloLens

Tues | 5pm to 5.45pm | Room 4

French developer Asobo Studio reflects on its experience of developing for HoloLens and the challenges AR devs face.



Business

The Four Yorkshiremen of Console Development

Weds | 11am to 11.45am | Room 6

Develop editor James Batchelor hosts a Q&A session with experienced console developers. With apologies to Monty Python.



Design

Let's Talk Narrative, with Rhianna Pratchett

Weds | 11am to 11.45am | Room 2

Mediatonic writer Ed Fear talks to Rhianna Pratchett about her 18-year career and the challenges of working in game writing.



Design

Increase Your Innovation

Weds | 5pm to 5.45pm | Room 6

Sketchbook Games' Mark Backler discusses how devs can discover new ideas for their games, drawn inspiration from outside the industry and learn from game jams.



Marketing

Harness the Power of the Crowd to Get Your Game Noticed

Thurs | 12.15pm to 1pm | Room 6

Drawing on her own Twitch and Kickstarter experiences, BBC technology reporter Kate Russell gives tips on the best ways to promote your project.



VR

Don't Go Alone – Take Me! How to make a social VR experience

UK indie Triangular Pixels offers advice on how to make virtual reality a living room experience, rather than an isolating one for single players.



Audio

Open Mic 2016

Thurs | 5.45pm to 6.30pm | Room 5

The traditional end to the Audio track: an open discussion about the state of sound and music in video games, chaired by John Broomhall.



BILLING BETTER GAMES

Joost van Dreunen reflects on the impact of Apple's plans to allow developers to introduce a paid subscription model to their games on the App Store

When Apple recently announced its intention to allow app developers the use of a subscription model, it pushed mobile gaming further toward maturity.

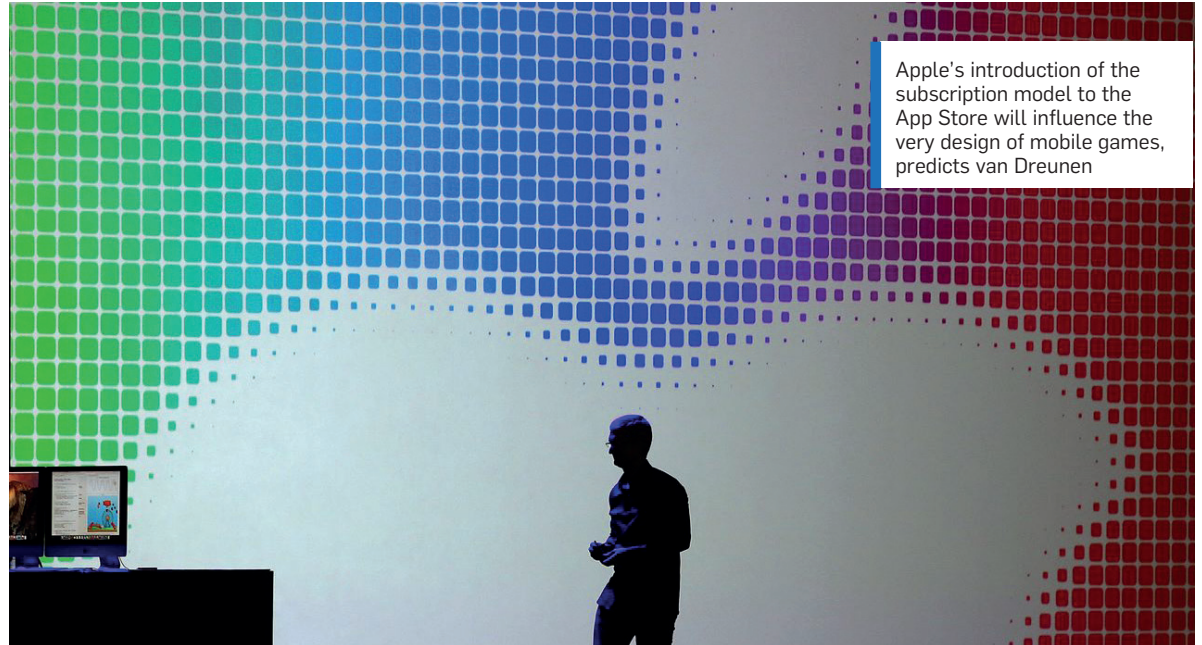
Despite a heavy emphasis on free-to-play as the primary mode of monetisation, the ecosystem is shifting. So far, publishers have predominantly emphasised user acquisition as the key component in their business strategy. Game companies taut slogans like 'Connect the world through games', or 'Make fun and simple games for everyone', which underscore their focus on addressing the broadest market possible.

But while we may think of mobile gaming as a flimsy experience that lives in the crevices of our daily routines, and consequently demands an ongoing effort to fill the top of the funnel, millions of people are very loyal to their favorite games and play them regularly.

So it would make sense for mobile game companies to explore in more detail what it would be like to instead focus on user retention. Mind you, churn is the key metric for any other media organisation. It offers a much better read on the health of your offering, and acknowledges that the value of a consistent customer is proven whereas that of a new one is not.

To put that into perspective, following several years of double-digit growth, the mobile games market is starting to lose steam. Last year the worldwide mobile games market grew from \$24 billion to \$30 billion, or about 25 per cent. For this year, that number is nine per cent, reaching \$33 billion.

The mobile market is, predictably, saturating. This shifts the focus of mobile devs toward improving their



player experience and extending the customer lifecycle. Moreover, as they continue to consolidate and increase their spending on marketing, in both digital and traditional channels, the barriers to entry are getting higher.

SUBSCRIBE TO THE THEORY

Beyond a strategic move, it also provides some new opportunities. Subscription revenue, for one, provides a steady cash flow. This allows an organisation to allocate more resources to content development, and build a longer-term creative vision that is not under as much pressure to deliver a positive, short-term result.

Furthermore, publishers can explore the possibility of bundling. We've seen this in other areas of the games industry where creators offer a broad selection of games as a packaged deal.

Contrary to the model first popularised by Zynga on Facebook, the mobile market now has an alternative and will be less

reliant on the combination of aggressive free-to-play monetisation and cross-promotion of its games.

“Making a monthly commitment offsets the risk of publishing by alleviating creators' dependence on a narrow group of super-spenders.”

Critics will argue that subscriptions lock people into recurrent spending, creating a slippery slope of monthly fees. But is it really so difficult to imagine that a consumer who really likes a particular game would want to have access to their content without having to look for it every month? Many other industries encourage and

reward customer loyalty. Making a monthly commitment is incredibly valuable, and offsets a lot of the risk of publishing by alleviating creators' dependence on a narrow group of super-spenders.

So far the mobile games market has been in pursuit of the largest addressable audience, only to find itself converting a tiny percentage of its overall users. This makes sense in the context of games-as-a-service, but also presents somewhat of an increasingly costly arms race. What follows is a constant emphasis on the rationalisation of the games business.

By allowing for a more diverse set of revenue streams, Apple is changing the games and types of experience that can sustainably exist on its platform. I'd subscribe to that. ■

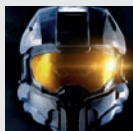
Joost van Dreunen is co-founder and CEO of SuperData Research
www.superdataresearch.com

MEANWHILE ON DEVELOP-ONLINE.NET



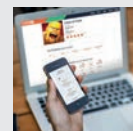
E3 demos prove we need better writers

bit.ly/1UQWfWF



'We've come a long way from Space Invaders': 343 on the evolution of Halo

bit.ly/1YILG3o



How Player XP's artificial intelligence is helping devs find the reviews that matter

bit.ly/21m9KSX



FRIDAY NIGHT DEATH SLOT

What happens when an episodic game fails to sell enough to reach its final instalment? Rival Games CEO **Jukka Laakso** recalls the pitfalls and challenges encountered by the developer as it attempted to keep *The Detail* alive

Creating an original IP is a challenge for anyone. Creating an original IP with a junior team and extremely limited funding is a life-or-death challenge.

The first obstacle you need to solve is how much content you can make. If you have a 10-hour story planned but only have enough money to create two hours of content, an episodic approach sounds like a smart way to go. Essentially, we are talking about making a pilot – except instead of trying to sell your show to a television network, you are trying to sell it directly to the viewers.

In TV, most pilots are never publicly screened if they fail to sell the series to a network. This means that the production quality is lower than it would be in the initial series. This does not apply to episodic games. A new indie studio cannot publish a half-done title and hope that someone might pick it up. Players have more games available to them than ever before and the quality from triple-A to small-scale indies is constantly rising. So developers need to give that pilot episode everything they have.

Since the public rarely sees a pilot on TV before the show has been greenlit, there isn't a need to market it as a whole to the viewers. In games, very few are going to spend their hard-earned bucks to buy a game that ends in a cliffhanger and might never continue. This is why you need to plan ahead how many episodes a season will have. If you don't have the money upfront to make them all, make sure you promise at least a conclusion to the story.

DEVIL'S IN THE DETAIL

Our initial plan was to launch five episodes of *The Detail*. The first episode launched in late October 2014 and the second in late May 2015. There was a

half-a-year window between them. The simple reason for this was that we had some overly optimistic expectations for the sales of the first episode. Once the harsh reality hit us, we had to have some temporary lay-offs and wait until the sales were enough to pay for the second episode. It was done in 10 weeks, with all the revenues being paid as salaries to the employees.

The episode itself wasn't bad, but it wasn't as good as the first one. This brings us to the next pitfall. If it takes you forever – six months in this industry – you must deliver an episode that raises the expectations for the rest of the season. We barely managed to make it over the fence. There was a slight, temporary increase in sales with the launch of the second episode, but that died down soon.

We had to do something. The first two episodes had actually sold over 100,000 copies at this point, but most of them were sold during Steam sales. The figures sounded nice but the revenue was actually pretty low. It cost the team \$40,000 to make the second episode and we barely made that back.

“

Making a good pilot, crossing your fingers and hoping for the best is not enough.

As a business case, *The Detail* wasn't capable of sustaining the company. Canceling the show was the only option on the table. Thankfully, we had taken precautions right from the beginning, selling the series pay-per-episode instead of the more traditional season pass model.

Before we made any ill-judged announcements about canceling the series



For the sake of fans, Laakso says you should have a conclusion to your story – even if your game's season is cut short

after two episodes, we started to think about the ramifications it would have. This was our first product. Canceling it mid-story meant that we would have been one of those TV networks that just look at the numbers and forget about the fans. After all, in the games industry it is the fans who make the difference between success and failure.

We decided to do one final episode for *The Detail*'s first season, cutting down the planned five-episode arc to just three. Another 10 weeks and \$40,000 later, we launched the third episode.

Now we have an episodic game in the market, a complete product instead of a partial will-this-ever-be-finished season. Yes, it could have been better. Yes, it could have come out in a much tighter schedule. But let's look at the benefits it has. First, now we can market it as a complete game. Secondly, the quality and visual style of our narrative has opened some extremely interesting opportunities. Finally, we gave the fans a conclusion to the major plot lines. If the game

breaks even in the next 12 months, it's not a bad debut, even financially.

AUTO-PILOT OFF

There is one major lesson to be learned from our endeavors in episodic gaming: the so-called 'Friday night death slot'. The term refers to a graveyard slot in American television, which condemned to death most of the shows aired during it.

As a small indie studio making episodic series based on your own IP, that is your slot. Just merely making a good pilot, crossing your fingers and hoping for the best is not enough. You need to stand out. You need marketing. You need to deliver episodes at a steady pace. Still, at the end of the day, you might need to cut your losses and try something different.

So, make sure you are ready to fight for those few viewers; they are all you'll have in the beginning. ■

Jukka Laakso is CEO of Rival Games. Its first game, *The Detail*, was released in October 2014. www.rival-games.com



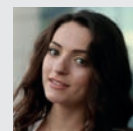
Mark Backler: 'People are crying out for new experiences'

bit.ly/1UfQOXl



Ground Shatter's James Parker on why you should port to consoles

bit.ly/28JOfZg



Five reasons to work with an established IP

bit.ly/1UquS5R

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**ACTING
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We talk to Troy Baker, David Hayter and Elias Toufexis

P16

IP LP

The creators of *Life is Strange*, *Quantum Break* and *Saints Row* on using licensed music

P28

**FIGHT FOR
YOUR RIGHTS**

UKIE unveils its plans to safeguard devs from IP infringement

P34



OLD DOG, NEW TRICKS

Legendary games developer **Ron Gilbert** tells us why he's thankful for Photoshop and unlimited memory as he wraps up development on crowdfunded retro adventure title *Thimbleweed Park*



Gilbert believes that modern games are too 'heavy-handed' and overly focused on narrative, which has taken freedom away from devs

What technology is behind *Thimbleweed Park*? How does it differ from the SCUMM

tech behind your early games like *Maniac Mansion* and *Monkey Island*?

The engine I'm using is one I wrote myself, it's all custom-made.

It's definitely inspired by what I did with SCUMM. There was a lot about that system I really liked – the way you programmed and interacted with it – and I never really found that with any of the other engines I've used.

When we decided to do *Thimbleweed*, writing our own engine was absolutely something I knew I wanted to do. Plus, I really like to programme – that's a fun part of the whole process.

While it does a lot of the same stuff SCUMM does, it's much more advanced. *Thimbleweed* is an 8-bit game, but we've moved way beyond that. There's a lot of interesting parallaxing, multiple layers to the world, shaders and lighting at work. So we're taking that 8-bit aesthetic and really treating it as an artistic expression rather than a technical constraint.

“

The key to doing a good retro game is to not make all the mistakes we made back then.

Ron Gilbert

Back in the '80s, we did 8-bit art because that's all we really could do. Now, we can do a lot more than that, but we really like that aesthetic, so we were trying to work out how we could do it while also moving it into the future.

The 8-bit aesthetic is very much back in fashion. Is it easier to do an 8-bit game, or does it require more skill/imagination regarding design?

Both. It's certainly easier than doing a fully-fledged 3D game; you can cut some interesting corners with 8-bit.

As 2D art becomes more realistic, you expect things to animate differently; when a character reaches out for something, you actually expect to touch the object because the animation is so good and high-res. When you go to the 8-bit style, you kinda get away without doing a

lot of that stuff because it feels like everything is an icon, not an actual object. That's where a lot of indies find the 8-bit art a little bit simpler.

The reason it can actually be quite a challenge is that you really run the risk that your game will look like it was made 20 years ago. But to do really good 8-bit art, it's more than just trying to replicate the retro stuff. What you have to do is figure out how to advance that aesthetic. There's a lot of techniques for drawing 8-bit art.

The artist working on *Thimbleweed Park*, Mark Ferrari, did the original backgrounds for *The Secret of Monkey Island*. As an artist, he's grown in the 25 years since then, so he's doing so much more with the lighting and perspectives of the worlds, and how things move and touch each other. That's what we're trying to do with *Thimbleweed*. As you move around, there's a lot of parallax that happens between the different layers of stuff. There's no way we could have done this back with the SCUMM system, but now we can. We throw a lot of horsepower at different things.

What's been the biggest improvement in development since you worked on *Maniac Mansion*?

Photoshop. Tools. When we were doing *Maniac Mansion*, Gary [Winnick] was drawing all that work on the Commodore 64 using the joystick. *Monkey Island* was a little easier because we were using DPaint, but that didn't have layers or all this other stuff. So being able to draw all of the art in a tool like Photoshop has saved months and months of time.

We also have full digital sound now. I have no desire to go back to the boops and beeps of PC speakers. While we had voice in later games, it's great to have that from the start for this project. It's fun to do.

The other thing is we spent a lot of time on those games dealing with technical limitations like the amount of memory or processor we had. We could only animate three objects at a time on the screen because that was all the CPU bandwidth we had. Nowadays, for a game like this, I basically have infinite memory. I never have to worry about something like memory or processor speed; we can do anything we want, throw as much stuff on the screen as we want. Better tools and infinite memory has made all of this so much more fun to do.



Using an 8-bit art style is more than simply evoking a retro feel, says Gilbert – it should also push the aesthetic forwards

There's a lot of developers trying to make retro-style games, particularly harking back to the hits of the '80s and '90s. How do you ensure something like *Thimbleweed* stands up as a great game, and not something that relies solely on nostalgia?

The key to doing a really good retro game is to not make all the mistakes we made back then. It's about being able to have people play the game without rose-tinted glasses because we have fixed all the issues that meant you would have needed those glasses to enjoy the game.

That's a lot of what we tried to do with *Thimbleweed Park*: it is that 8-bit aesthetic but we've thrown a lot of technology at things, like shaders as you walk in and out of the lights, which makes it a lot more visually interesting. We've also fixed a lot of the stupid things about playing point-and-click adventures, the things that we would do in games back then because that's just the way it was but that modern gamers don't have tolerance for.

We've changed the pacing, for example. *Thimbleweed*'s pacing is very different to how the classic adventures were because, back then, you started the game and we just pushed you into the pool and said: 'Hey, have fun.' It was sink or swim. You can't do that these days.

We're not doing tutorials or pop-ups or anything like that, but we do start you in a very small area of the game and teach

you bit-by-bit: this is how you pick up an object, this is how you use it. We slowly let the game get a little bigger and gently expose the player to the world, letting them get used to it. That's what you need to do with retro games nowadays.

***Monkey Island 2* felt quite slow because you had to travel back and forth to the various islands. There are rumours all that backtracking was to make the game feel longer.**

I think we were that evil back then.

How have you avoided being 'evil' this time around? How have you made a lengthy adventure without resorting to too much backtracking?

Well, the puzzles need to be logical. To me, a perfect hard puzzle is one that takes you a while to solve but when you do, you go: 'Of course, I should have thought of that.' That means I've given you all the clues you need, but it took you a while to piece them together. Bad adventure games are where the designers haven't given you those clues. They expect you to randomly use all the verbs and objects until you randomly stumble upon the problem.

With modern players, it's about being clear and giving them focus so that when they're exploring the world they always know roughly where they should be heading. You don't force them to go there, you don't put them on rails and drive them there, but you make sure they always know where they should be going.

When you're using inventory objects, make sure it's real-world uses for that stuff. You don't use the whiskey bottle with the camera and find it suddenly solves your problem. That sort of thing used to frustrate people. We try to make sure that when you're using verbs with objects, or objects with other things in the world, it needs to always make logical sense. You may not have thought of it immediately, but it makes sense when you do.

Better tools and infinite memory has made all of this so much more fun to do.

Ron Gilbert

It's okay to make players work for something, but it's not okay to make them do busywork. If you're requiring them to take various steps just so that they've gone through that many steps, you've failed. If you can eliminate the busywork leading to something without dumbing it down, you've got a tight game with strong puzzles and a well-paced story.

Point-and-click relies as much on its story as its puzzles. How much time has gone into writing *Thimbleweed Park*?

We've spent a lot of time on the story and the writing. With stories and adventure games, it comes back to that emphasis on direction. You can use the story to focus players on what they should be doing and the path they should be going down. The puzzles become the mechanics of moving down that path.

Modern games are a little bit heavy-handed with story, a little too focused. I want a bit of freedom so I can push around the edges of stuff. You'll definitely get that in *Thimbleweed*, but you won't get the feeling of being totally lost because there's so much to do, so many people to talk to and so many different aspects to the story that you don't really know what to pay attention to.

Does having multiple playable characters help with that?

Yes, and it helps with the puzzle-solving, because if you're stuck on something you can switch over and play someone else for a while. It gives players options when they're stuck. You never want an adventure game to have a single puzzle that needs to be solved at any given moment because if someone is stuck on it, there's nothing else for them to do in the game. You want to take a multi-layered approach, and multiple characters are a good way to do that.

Finally, how many easter eggs have you hidden in *Thimbleweed*?

More than you can count. Actually, sometimes we had to pull back on that. ■



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Troy Baker (*right*) says that lending his voice to *BioShock Infinite*'s Booker DeWitt (*above*) was such an attractive role because of the game's "impactful messaging"

BOOKER. **BAKER.**
JOKER. DRAKE.



He's survived the end of the world, travelled through time, battled with Batman and discovered a lost civilisation – but he's just getting started. Now Troy Baker, one of the games industry's most prolific voice actors, tells **Matthew Jarvis** how developers can join him on his next great adventure

Even if you've never heard Troy Baker's name before, it's very likely you've heard Troy Baker.

Behind only the ubiquitous Nolan North, Baker is probably the second-most copious voice actor currently working in games – not just in quantity, but quality too. He counts among his numerous credits leading roles on titles including *The Last of Us*' Joel, *BioShock Infinite*'s Booker DeWitt, *Far Cry 4*'s Pagan Min, The Joker in *Batman: Arkham Origins* and Ocelot in *Metal Gear Solid V: The Phantom Pain*.

This year saw Baker reunite with both Naughty Dog and North on the closing chapter in the *Uncharted* franchise, portraying the brother of lead hero Nathan Drake, Sam. It also meant that he was once again working with *Last of Us* and *Uncharted* creative director and writer Neil Druckmann, who Baker says serves as a perfect example of how developers and performers should collaborate.

"Neil has really got a good handle on really involving his actors in the process and making sure they have ownership of these characters," he praises.

“

We're creating characters that have to sustain 12, 15, 40, 100, 200 hours. So they have to be so much richer than what we're seeing in other forms of media.

Troy Baker

"He is constantly asking them questions: 'What do you think Joel would do with this?' 'Elena's really wrestling with this thing with Nate – how does she respond?' As opposed to telling them, he asks them and gets

them to come up with the answers for themselves.

"He's got an answer tucked away in his back pocket that he could pull out anytime he wants, but he really trusts his actors.

"I'm seeing that happen more and more with other studios, as well, where they have all of the backstory and information you possibly need, but they also trust you enough to run with it."

VOICE VOLUME

Developers craft the skeleton of a character, but it's not until actors put flesh on the bones and a breath in their lungs that virtual creations fully come to life.

As time and technology have progressed, many performers have been asked to form even tighter bonds with their digital doppelgangers.

"A lot of people say: 'I just want to find a voice'," Baker explains. "It's really not about that anymore. It's become so much more, to where you

don't just go into a studio and get in front of a mic and read lines.

"These are not even on par with, but sometimes surpassing, where we're at with TV and film. We're creating stories and characters that don't have to sustain two hours – they have to sustain 12, 15, 40, 100, 200 hours. So in a lot of ways they have to be so much richer than what we're seeing in other forms of media."

One major change is the impact of motion capture, with the increased fidelity of character models and animation leading performers to lend not just their voice, but their body and likeness, to developers' creations.

"Whereas before it was go into the booth and 'Here's your script and maybe you might be with another person', it's now pretty much the standard for most games, especially triple-A, to do the full performance capture as if it was a movie and spend two to three years filming and going through 300 to 400 pages of script, producing an hour-and-a-half to three

hours worth of cinematic content," Baker recounts. "It's required a lot of me, and more of me, which I absolutely love."

The first *Uncharted* was a landmark title for motion capture and voice performance upon release in 2007, and is credited by Baker as partly inspiring his own career as an actor – "I just wanted to be a bad guy that he threw off a ledge, but here I am playing the brother of Nate Drake," he enthuses – just as it influenced developers across the industry.

A decade on, Baker feels that the seeds sown by Druckmann and his team are continue to flower, albeit in new patterns.

"Everyone has finally stopped looking for the magic bullet of how to do performance capture and they're creating their own boutique version of it," he observes.

"It's like: 'That worked great for Naughty Dog, but that's not really what our pipeline is. Our pipeline is

more focused on this, so now we do it this way.'

"It's really more of this bespoke version of performance capture than it is the formulaic ISO 9000 standard version. Our industry won't sustain that. It's an iterative process, and every studio has their own DNA."

IF YOUR ART'S NOT IN IT

Alongside Druckmann and Naughty Dog, Baker has partnered with some of games development's most iconic studios and auteurs, such as Hideo Kojima and Ken Levine, and worked with some of the biggest actors to grace screen and stage, including Kevin Spacey and Kiefer Sutherland.

Yet, despite his rocketing success, Baker reaffirms that his passion for voice acting remains in his ability to give a voice to characters worth hearing.

"I look at small studios specifically and I'll say this for me: what I'm drawn to is the content," he says. "People will

throw out 'I can't pay double scale' or 'I can't pay Kevin Spacey for what he wants to do'. No, you can't, but what you can do is create content and say 'Do you want to make some art? If you do, and you're able to sacrifice a little bit in order to do so, we want to give you a platform to do that.'

“

Crafting good experiences and creating incredible characters will attract more and higher-quality actors than any amount of money.

Troy Baker

"There are a few projects I'm doing right now that are not big-budget

games. They don't have the 'money' to get me but, because I want to be a part of it, we're getting creative about how it can make sense for me to give the amount of time I'm willing to give to be a part of the project, because I believe in the project."

Baker reaffirms that developers should view voice actors as integral to the creation of their virtual worlds, and offer actors the ability to directly input on the characters they spend hours moulding.

"What I'm looking for are empty seats at a table that are right for me, where I can come in and be part of the team," he explains. "Because I want to be a part of the crafting of this, as well. I really like being involved, soup-to-nuts, in projects that I really believe in."

"If developers entice people by just really crafting good experiences and creating incredible characters, that will attract more and higher-quality actors than any amount of money." ■



Troy Baker worked with famed creator Hideo Kojima while voicing Ocelot in *Metal Gear Solid V* – an opportunity he calls "a great honour"



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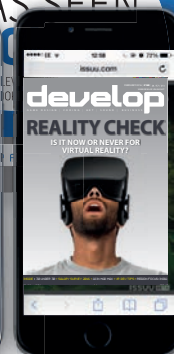
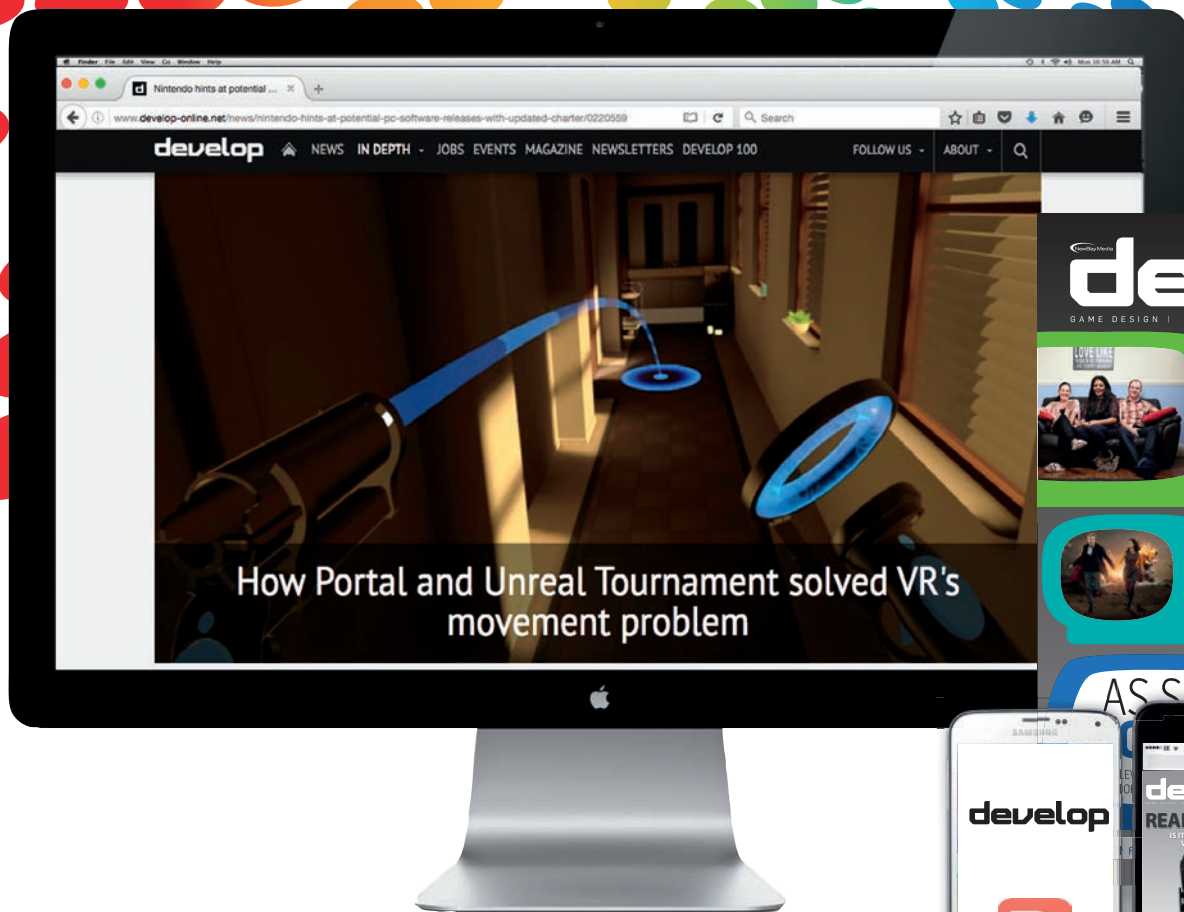
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SNAKE'S TALE

David Hayter is not only one of the most singular voice actors working in games, he's also a Hollywood writer and director responsible for some of the silver screen's biggest hits of all time. **Matthew Jarvis** catches up with the man of many talents to discuss the importance of recognising performers and life after Metal Gear Solid

VOICE ACTING | DAVID HAYTER

Some performers are chameleons, blending effortlessly into countless parts and establishing their skill as protean character actors. Others are snakes, sinking their fangs into a single role and winding so tightly around it the character and artist become inseparable. In the jungle of games, there's arguably no greater serpent than Solid Snake himself, David Hayter.

The voice of Hideo Kojima's gruff stealth hero and his various incarnations for over a decade, Hayter was controversially usurped for concluding chapter *Metal Gear Solid V: The Phantom Pain* and its prologue *Ground Zeroes* by TV and film actor Kiefer Sutherland.

Yet, Kojima isn't the only developer turning to established screen stars from outside of games; Supermassive Games called upon *Heroes* actor Hayden Panettiere and *Fargo* icon Peter Stormare, among others, for *Until Dawn*, while Remedy cast *X-Men's* Shawn Ashmore, *Game of Thrones'* Aiden Gillen and *Lord of the Rings'* Dominic Monaghan in *Quantum Break*, to name but two.

With Hayter's departure arguably marking the biggest voice acting upset in games to date, does he feel that developers' preference for Hollywood superstars over their specialist games counterparts is a misstep?

"It depends on the situation," he responds. "I believe in the integrity of the character, so I don't necessarily think it's wise to change their voice along the way just to have a bigger marquee name playing it. As a fan and gamer, that takes me out of the situation."

"But I also think it's interesting to see Ellen Page, Shawn Ashmore or Kevin Spacey playing versions of their own personas in video games. A great actor is a great actor; it's always fun to watch them do what they do, and it brings even more legitimacy to a project."

“

If somebody is incentivised to buy more games because a specific actor is in them, that actor deserves the recognition.

David Hayter

"That said, there are amazing voice actors like Nolan North, Jennifer Hale or Phil LaMarr who are arguably better at the voice acting side of things than your average celebrity. It just depends on what the project is, how you're selling it and how you want your characters to be played."

PERFORMANCE POWER

As the line between acting for games and film increasingly blurs through the advent of facial and performance capture, stars of the virtual stage have continued to lobby for recognition in line with those employed in film and TV.

This came to a head late last year, when union SAB-AFTRA was authorised to call a strike on games work. 96.5 per cent of voters backed the move in response to calls for actor bonuses based on sales of successful titles and compensation for the growing requirements of voice performers, such as stunt work and performance capture.

"Voice actors deserve recognition if they bring a certain amount of quality and talent to a game, in the same way that film and TV actors deserve it," Hayter asserts. "Recognition for a project you've worked on is a way of getting more work, building your career and being recognised over time as someone who brings quality to whatever it is they work on."

This doesn't mean that every bit-part actor should receive their share of *Call of Duty's* multi-millions, Hayter continues, clarifying that the growing notability of the industry's A-list performers means they should be rewarded.

"If someone is doing voices in the background or they're just doing a workhorse-style job then no, they don't necessarily need to be overly promoted," he clarifies. "But if someone's making a star turn in a game, like Nolan North in *Uncharted*, they should get recognition for that."

"Sometimes the games companies – the developers, the producers – are a little nervous to allow that to happen because they'll have to pay more for their actors, but at the same time it's good for the titles. If somebody gets to know Nolan North or Troy Baker or some of these amazing actors and then they're incentivised to buy more games because they're in them, that actor deserves the recognition as they're driving the commerce of it."

UP A GEAR

The loss of Hayter's gravelly tones wasn't the only way *MGSV* struck away from its predecessors. It was the first major entry in the series to hit non-PlayStation platforms, as well as the first built upon the new Fox Engine and explore open-world environments. Radical evolution has become as much a part of the franchise's DNA as cardboard boxes and bipedal tanks, and Hayter's performances similarly adapted.

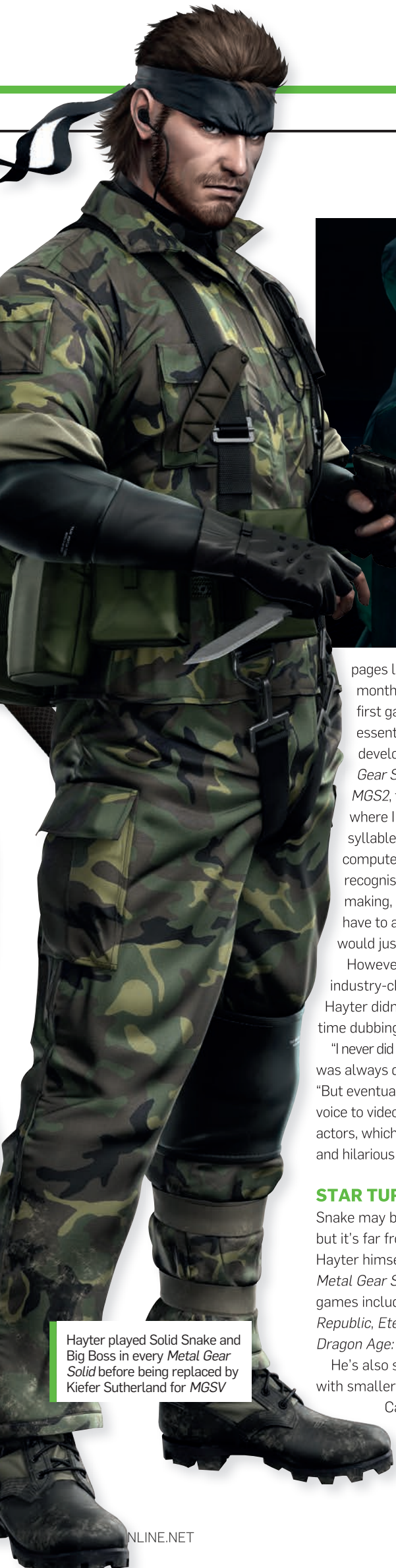
"The *Metal Gear* games were always on the technological cutting-edge and exploring new ways to present gameplay, to do battle, to integrate cutscenes and so on," he observes. "Each game raised the bar and so each one was different."

"*Metal Gear Solid* was the very first game that went straight from the gameplay into the cutscenes – which was why Snake didn't have a face. You felt like you were playing a movie."

Kojima's passion for cinematic storytelling reached its peak in 2008's *Metal Gear Solid 4*, which closed with a record-breaking hour-long cutscene and even featured Hayter in person playing himself during its live-action opening.

"As the games went on, each script got longer and longer," Hayter says. "The script for *MGS4* was thousands of





Hayter played Solid Snake and Big Boss in every *Metal Gear Solid* before being replaced by Kiefer Sutherland for *MGSV*



In *République*, Hayter voices Zager, whose audio logs guide player character Hope

pages long and took us nine months to record, whereas the first game took us seven days, essentially. Along the way they developed technology. For *Metal Gear Solid 3*, or maybe even *MGS2*, they developed technology where I could just say a bunch of syllables into the mic and the computer would eventually recognise what sounds I was making, so they would not longer have to animate the lips, the lips would just move to my voice."

However, there was one industry-changing technology that Hayter didn't encounter during his time dubbing the games into English.

"I never did mo-cap for *Metal Gear*, that was always done in Japan," he reveals. "But eventually I started recording my voice to videos of the Japanese mo-cap actors, which was sort of interesting and hilarious at the same time."

STAR TURN

Solid Snake may be Hayter's defining role, but it's far from the only character Hayter himself has defined. Outside of *Metal Gear Solid*, the actor has voiced games including *Star Wars: The Old Republic*, *Eternal Darkness* and *Dragon Age: Inquisition*.

He's also struck up partnerships with smaller studios, contributing to Camouflaj's *République*, Hinterland's *The Long Dark* and the upcoming *Bloodstained: Ritual of the Night*. Landing one of

games' most iconic voices is a boon for any dev, so how did Hayter end up working with lesser-known creators?

"In the case of *République*, it was being put together by a developer friend of mine named Ryan Payton who had been a producer on the *Metal Gear* games," Hayter recounts. "He just called me and asked me if I would do it, and told me about the character, and I thought it was really cool. I mostly wanted to do it because I believe in Ryan and he'd always been a good friend to me."

“

I really just love doing the job, so I'll do little independent games that nobody's ever going to see.

David Hayter

"I also did a little independent game recently, called *Deponia Doomsday*. They didn't have a lot of money, but they just really liked me and asked if I would play an older version of the main character. I thought it looked fun."

It's this element – enjoyment – that Hayter highlights as key to his interest in teaming up with any developer – big and small alike. Just don't expect him to reprise his most famous role.

"I don't really do the voice-over for the money," he says. "I mean, the money's pretty good, but my writing work pays my bills, so really I just look at it and

think: 'Am I going to have fun doing this and am I going to be able to do something a little different?' A lot of people just want to hire me to do the Snake voice again and I kind of feel if it's not Snake doing it then it's just a rip-off."

FOR THE LOVE OF GAMES

It's a testament to Hayter's work in games alone that we've got this far without even mentioning his writing career, having penned the highly successful superhero flick *X-Men* and its seminal sequel, as well as blockbuster comic book adaptation *Watchmen*. He's also a director, producer and actor in both TV and film, including on small-screen hit *The Flash*.

In many ways, it may seem that severing ties with Snake would allow Hayter to fully pursue his flourishing career in Hollywood. But he remains infatuated with the lure of virtual creations – whether it's the next triple-A behemoth or an obscure indie darling.

"Luckily, I have this job as a writer so I don't rely on voice-over to provide a living," he says. "So I get to do things that I think are fun. I'm attracted to all sorts of things. I really just love doing the job, so I'll do little independent games that nobody's ever going to see, or *The Old Republic*, where it'll be millions of fans and worldwide exposure. I like genre pieces, I like playing heroes, I like playing villains, I like exploring new worlds."

"The bottom line is I just really like to work and, fortunately, this is one of the most fun jobs in the world, so just anything that allows me to continue to do it is okay in my book." ■

Gruff-voiced Elias Toufexis may be the face of mankind's future in Deus Ex, but he's also a sign of things to come for studios.

James Batchelor asks him why voice actors want to become increasingly involved in their character's development

HUMAN ELOCUATION



Although Toufexis is familiar to players for his role as *Deus Ex*'s Adam Jensen, he worries lesser-known game actors will lose bigger parts to TV and film stars

Exactly ten years ago, Elias Toufexis made his video game debut as crew member Sal Mustalla in *Need For Speed: Carbon*. Hardly a headline role, the actor is the first to admit that, when he first started, "nobody knew who I was".

"I would just come in, do my day and then go home," he explains. "I'd get to know the cinematic director and the technicians, but the dev team, marketing and so on? I'd never talk to them."

Fast-forward to 2016, where Toufexis has reprised his role as *Deus Ex*'s Adam Jensen with voice credits on blockbuster series such as *Assassin's Creed*, *Splinter Cell*, *Far Cry* and *Rainbow Six* under his belt. Now, he is a lot better known in the industry – particularly at Eidos Montreal, where he's in touch with every department working on *Mankind Divided*.

In the case of *Deus Ex*, the actor is taking much more pride in his involvement and is keen to help ensure the game's success. But it's an attitude that not all studios welcome.

"There are devs and companies who work on these games who just consider actors to be part of what they're working on – which I completely understand, because they put a lot more time into the game than we do," he says.

"I'll do a week of *Mankind Divided*, and then work on other things until they call me back. But the people who are working on the game are there all day, every day – it's their life. So I get that.

"But in the end it is the actors who become the face of the game. One of the stipulations I had when I came back for *Mankind Divided* was that they had to get me out there, bring me to the Comic Cons and things like that, because people on Twitter and journalists are always asking me questions, so it makes sense to get me out there talking about and promoting the game."

MORE THAN A MOUTH

Over the past decade, things have changed dramatically for voice actors like Toufexis. For one, the job increasingly involves more than just vocals.

"For triple-A games and any titles I've been involved in over the past two and a half years, it's all about performance capture," he says.

"They're really putting a lot more effort into making the characters 'real'. They hire actors – we audition for them like we would a film nowadays.

"The idea of being a voice actor now is kind of gone for video games because very few of them just do voice anymore – unless it's a first-person game. When I worked on *Far Cry Primal* [as lead character Takkar], I only did one day of actual performance capture work because you never see my character.

you see him, but every time you do see him in cutscenes, it's me doing performance capture."

Toufexis has welcomed this change, as it ensures his vocal performance is a much closer match to the character's movement. During his second role – playing *Rainbow Six: Vegas 2* villain Gabriel Nowak – he recalls having to match his voice to a character that had been motion captured by the team's animators.

"Fortunately, developers have realised 'maybe we should get the actors to do this part too', and now everything is kind of amalgamated into getting the actors into doing everything – which is the right way to do it," he says.

"There's a rhythm actors get into with things like that. If you have to match your voice to a performance that's already done, you're a slave to what that performance already is, so we all prefer to do it together.

“

The idea of being a voice actor now is kind of gone for video games.

Elias Toufexis

"But everyone else, every character you meet in that game is completely performance captured: sound, facial movements, body motion. Everyone's doing what Andy Serkis does for almost every character now.

"For Adam Jensen, I do a lot of voice work because you hear him more than

"For the majority of *Far Cry Primal*, because it's first-person and you never see my character, I was in a booth and they would show me what they had already performance-captured with the rest of the cast, and I would be acting off of that – personally, I don't really like that. I like to be there with the other actors. So I asked, and for any scenes they hadn't already shot, they let me come in and read with the actors while they were capturing – I was just off camera."

EX LOVER

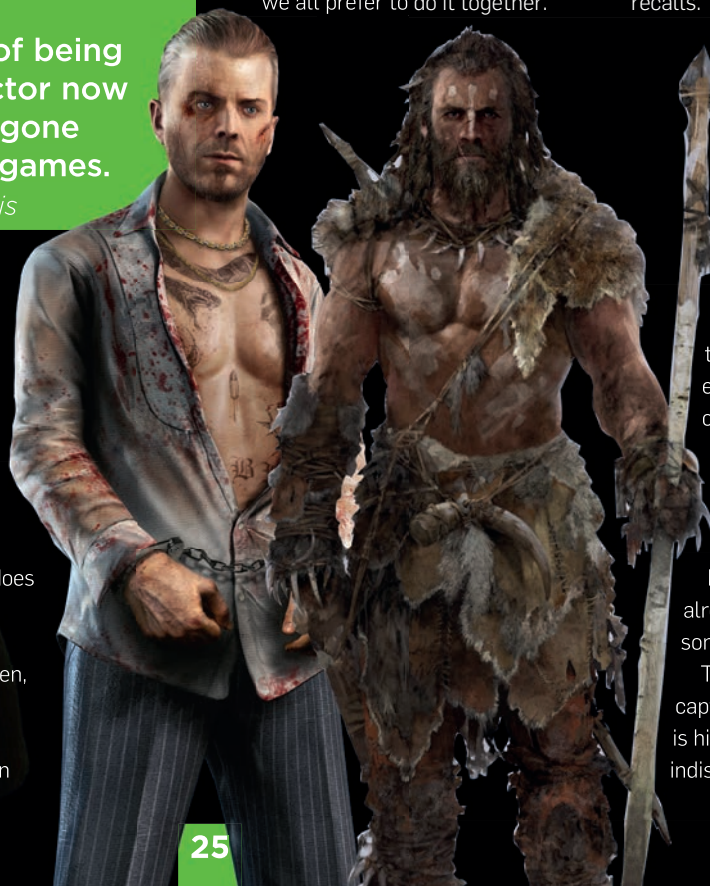
While he was too late to ask for this with the prehistoric adventure, Toufexis practically insisted on personifying Jensen as much as possible when he returned for *Mankind Divided*.

"It was the first time in my career that I've been in the position where they can't do the next one without me, so I could demand some things," he recalls. "In *Human Revolution*, they only did mo-cap, not full performance capture – and even then I think only did one day of that before they decided it was too hard to stretch me to six-foot-four.

"For the next game, I said I wanted to performance capture everything. And they did; they upped the technology and brought me in every time they needed to capture something.

"In fact, I don't just play Adam Jensen – I also play a guy who's carrying a corpse and a guy walking across the street. Because I was there, I was already suited up and they needed someone to do those things."

Toufexis is a fine fit for capturing Adam Jensen. Not only is his natural voice almost indistinguishable from that of the



augmented hero, his body type is very similar too. But, as he has seen first-hand, developers have found ways to adapt when voice and body don't match.

"Technology is so crazy nowadays," he says. "It almost doesn't matter who you cast – if you like their performance, you can just change how they look in-game later on."

Advances in character modelling, as well as performance capture, mean that in-game heroes don't merely look similar to their voice actors – they can look identical. While Toufexis welcomes this, he does see a potential new challenge for hopeful and rising video game actors.

"I'll watch Adam Jensen and I can see myself in that character, and the same with Robin in *Splinter Cell: Blacklist* – they made him look like me at 50," he says. "All the characters in *Far Cry Primal* look like their actors.

"It means I'm very lucky that I've caught on with the video game world because it's going to get to the point where they'll just use big name actors for roles in things like *Quantum Break*.

Actors who are just coming up are going to lose out to these guys because performance capture is getting so good.

"But there's always going to be work available. I might be the lead of *Mankind Divided* but there are 250 other characters in there and every one of them is performance captured. When you see an NPC now, they're very rarely animated."

Of course, performance capture creates a far more demanding process for actors like Toufexis. Most notably, they can no longer just read lines off a script in a booth – they need to memorise their lines for a process that's more akin to theatre than TV or film.

"You have to know everything," says Toufexis. "For a game like *Splinter Cell: Blacklist*, the camera is operated by the player so you can't screw up as an actor because there's no place to do an edit. When you're performance capturing, if you have a big 20-minute scene, you're doing it like a play – and that gets tricky because you don't have as much rehearsal time."

CHOICE OF VOICE

For devs looking to find actors that will bring their characters to life, Toufexis has two crucial pieces of advice.

Firstly, studios need to recruit good actors.

"Don't hire people who exaggerate – you want a genuine performance," he says.

"I was at an audition for a TV show and there was a games

audition in the next room. I heard them yelling things like 'Charge' – every one of them was overdoing it, or not doing it enough. The actors just weren't getting it. I wanted to go in there and just say: 'Treat this like a TV show or film. Don't look at it as a game, because then you become this 'game actor' and lose the performance of it.'"

Secondly, developers need to avoid 'the Batman voice'. In the wake of Christian Bale's raspy Dark Knight, more and more game protagonists are adopting gravelly tones – even when it doesn't quite match up with the character design, such as *Watch Dogs*' Aiden Pearce.

"With Adam Jensen, I did that voice on purpose," Toufexis explains. "I went back to play the original *Deus Ex* and wanted to pay homage to that. Jensen talks a little deeper, more purposeful and monotone than me, because he's a character you imprint your personality on.

"I play games and even I notice it. But I think that's going to end because people have caught on now."

Toufexis is keen for developers to let him experiment with characters' voices.

"I got typecast in the video game world," he laughs. "Because I sound the way I do, people don't think I can do anything else.

"*Far Cry Primal* is the perfect example: I asked if I could try something different, take my voice a little higher. They said no, they just wanted me to use my gruff, cool voice – but as a caveman. It turned out great, but I'm not only the gruff voice guy.

"If you go back in my career before I became more well-known, I played different characters. I'm Ezio's brother in *Assassin's Creed II* and he was quite high-pitched, very different. But I'm stuck now playing these gruff-voiced characters – which I don't mind too much, because I'll probably get work forever." ■

Toufexis is known for his gruff-voiced characters – but is keen to experiment with a greater range of voices

WHOSE LINE IS IT?

The likes of Nolan North, Troy Baker and David Hayter have relatively easy jobs compared to Elias Toufexis. For the vast majority of their roles, the script is set and the character follows only one part through the story.

However, in the case of *Deus Ex*'s Adam Jensen, Toufexis has to account for the myriad of personalities gamers can imprint on him: empathetic crusader, objective soldier, ruthless killer and so on.

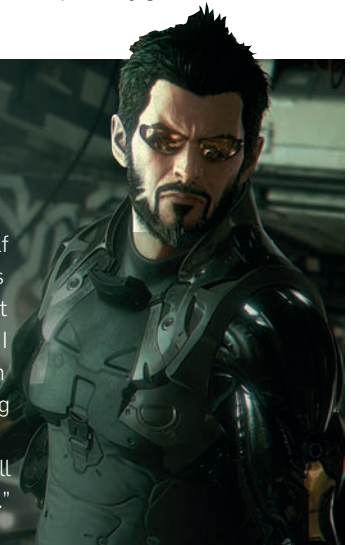
"It's especially tricky because you have to justify every choice the player could

make – whether you agree with it as a character or not," he says. "I have my view of Jensen, because overall he doesn't change: he wants justice, and he's very empathetic to people in the overall story.

"Having said that, there was a part in the last game where you think Megan has died and her mother asks you how it happened. You're given three or four choices and one is a very graphic, rude description of how she died. I remember seeing it and thinking 'Who would pick this?', but as an actor I have to justify that choice

because it would be unfair to not give it as much weight as every other choice. That's the tough part of playing Jensen.

"You could play this game and not meet half the characters, and not see half the cinematics depending on the choices you make. So in the cinematics for the most part, I can be the Jensen that I think he is so I don't have to justify weird choices. But when I'm doing the vocal part and we're meeting characters in first-person, you can go five different ways with it and I've got to justify all of them. It's a challenge, but it's a lot of fun."





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WORKING IN HARMONY WITH LICENSED SOUNDTRACKS

A well-placed song can lend a game a vital emotional edge and strengthen the player's engagement with a virtual world. But how do you go about selecting the right tune to define your title – and ink that all-important licensing deal? **Matthew Jarvis** asks music maestros at Remedy, Dontnod and Volition

Pulp Fiction? Miserlou. Apocalypse Now? The End. Fight Club? Where Is My Mind? Donnie Darko? Mad World. Trainspotting? Born Slippy.

When utilised efficiently, a licensed music track can come to define a work of art – and vice versa. You may not know it's titled Little Green Bag or that it's performed by the George Baker Selection, but you could almost certainly hum the theme tune to *Reservoir Dogs*.

Limited for decades by technological limitations and nascent narrative

ability, games are now increasingly making use of licensed soundtracks to enhance their atmospheric storytelling in line with their cinematic cousins.

One developer to have fully embraced the musical of its live-action siblings in TV and film is Remedy Entertainment, which often plays well-known tracks over the credits of its titles, as well as on radios in-game.

"For *Quantum Break* from the beginning there was always the plan of using licensed tracks since we follow an act/episodic structure," recalls

senior narrative designer Greg Louden. "Since *Alan Wake* it has become a Remedy trademark, and was inspired by great TV shows having licensed tracks at the end of each episode.

"With regards to using existing tracks, it's inspired by wanting to create a pop culture classic feel like a Scorsese or Tarantino film. As these auteurs have proven, using existing songs adds a layer of cool to the experience. However, all of the tracks chosen must also have a deep connection to the story and provide additional meaning."

Other studios have taken the integration of music to another level. One such outlet is Volition, which has created entire gameplay set-pieces around tunes as diverse as Power by Kanye West, What is Love by Haddaway and Paul Abdul's Opposites Attract in its *Saints Row* series.

"One of the main foundations of the tone of *Saints Row* is pop culture and nostalgia," observes senior audio designer Brandon Bray. "Licensed music is a great way to pay homage to that.

"The audio designer and level designer responsible for any given mission would

FIVE STANDOUT SONG USES IN GAMES



To All of You/uoY fo lIA oT – Syd Matters (Life is Strange)
Played in the first episode, this song is later reversed in the title's finale as time runs backwards.



Power – Kanye West (Saints Row: The Third)
Used in its E3 trailer, Power reappears in *Saints Row: The Third* as players parachute into and raid a penthouse.



The Man Who Sold the World – Midge Ure (Metal Gear Solid V)
An electro-tinged cover reflects the start of Snake's recovery – plus Hideo Kojima's love of the late David Bowie.



Make it Bun Dem – Skrillex and Damian 'Jr. Gong' Marley (Far Cry 3)
This blend of dubstep and reggae comes thumping in as the player blasts drug fields with a flamethrower.

come up with a list of songs that could be appropriate, and ranked them from 'This would be rad' to 'Cool, but not ideal.' We'd work with our music consultant to try to get our top choices.

"Sometimes it would work out, sometimes it cost too much. For some, we realised that it would be better to work with our composer on custom scoring so we could save the licensed music for a more appropriate time. We were going back and forth on whether or not we should use Aerosmith in the opening mission up until we submitted our release candidate."

OLD MEETS NEW

While a growing number of games are making use of existing songs, very few – sports games excluded – have a soundtrack composed entirely of licensed works. This means that pre-existing tracks must be harmoniously combined with original compositions, without causing a record-scratch-like shift in tone.

"At Remedy we're lucky enough to have both great licensed music as well as an original score by Petri Alanko," explains Loudon.

"In our experience, licensed music traditionally acted as a trademark played during end act screens to close the act. Whereas we use the original score during the acts to drive home emotional beats and add mystery, drama and other emotional-driven cues. Licensed music adds style and an additional means to summarise the story, whereas original music allows us to guide the audience during the story itself."

Sébastien Gaillard, audio lead at Dontnod Entertainment, recounts the developer's similar experience when designing the inclusion of licensed tracks alongside custom compositions in episodic teenage drama *Life is Strange*.

"Really early in the game development, alongside the writing and

the pre-production, we decided to have both an original soundtrack and licensed tracks, as it was logical with our intentions for this project: each of them would and should serve a precise purpose at different moments of the game," he details. "It was really important to never have music for the sake of it, as the music shouldn't be used as a 'song jukebox' with no real intention.



“Whether you use licensed music or custom scoring depends on what emotions you are trying to evoke.”

Brandon Bray, *Volition*

"When we were writing the game and key scenes started to emerge, we started to gather hundreds of different songs that could accompany those scenes, that would not only illustrate them, but also add secondary layers of meaning and narrative."

RECORD PLAYER

Music shouldn't only fit with your game – it must also strike a chord with your audience to reach its full potential.

"When used properly, licensed music pulls at the heart strings of nostalgia," states Bray. "A personal example is using The Touch by Stan Bush in *Saints Row IV*. I am a huge *Transformers* fan, and the animated movie from 1986 holds a special place in my heart. A lot of people in our demographic have that same affection. When you get to the mission where you put on the power armour and that song starts to play, we want you to be immediately transported back to being eight years old, chowing down on Lucky Charms as you watch Rodimus Prime fight Galvatron.

"Whether or not you use licensed music or custom scoring really depends on what emotions you are trying to evoke from your audience."

Another way to strengthen the bond between your players and game is by providing them with a level of control over the soundtrack. Think *Grand Theft Auto's* in-car radio stations, but applied in relation to thematic storytelling.

"An aspect I'm proud of in the interactive narrative of *Quantum Break* is that, depending on your first junction choice, we change the in-game radio station's music from hard rock – if you choose the aggressive option – to classical music if you choose the calmer alternative," says Loudon. "Essentially changing the ambiance and using music as a means of player choice for which it traditionally isn't used."

At select moments, *Life is Strange* allows players to interact with protagonist Max's acoustic guitar – she will then accompany the licensed background music, directly bridging the gap between the player's input and the game itself.

"The use of songs should never be gratuitous," advises co-director and art director Michel Koch. "For us, it was important that it added to the player's experience, added secondary layers or storytelling and made sense with the story, characters and the themes of the game.

"Allowing Max to play the guitar over Jose Gonzalez and Alt-J was important for us to anchor those two songs even more into Max's universe, to show that she is relating to those songs and listening to them at the same moment as the player. Those songs are here for Max first, then for the player. It creates a stronger link between the player and Max."

LICENCE LOVE

Including licensed music in your game can have significant benefits, but it also adds multiple complications, spanning from licence management and deal negotiations to the need for additional budgeting.

"Effectively using licensed music is more challenging than you might expect," warns Remedy audio lead Richard Lapington. "First challenge is earmarking enough money in the budget at the beginning of the project and actually making sure it is not spent by the time you do the licensing.

"Choose your tracks and start the process as early as possible. I'd also recommend using a licensing agent who will handle the legal, publisher and artist negotiations. It is possible to



Far Away – Jose Gonzales (*Red Dead Redemption*)

Gonzales' fingerpicked guitar rings across the empty desert as John Marston rides into Mexico.

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license yourself, but it takes time and there are some legal aspects you need to make sure you cover.

"Make sure that licensed music is part of the game's budget and design. Choose the locations of the music carefully, ensure that the track you choose fits that scene and has time to play and be heard to its full – having a mismatch here doesn't serve anyone. After you have your A list of songs, make plan B and plan C lists.

"The licensing process itself is relatively straightforward. However, something I personally hadn't come across before *Quantum Break* was that we had a number of artists wanting to know the context of the scene the song would be used for, particularly any violent content associated with their track. In some cases, we had to write scene descriptions for the artist and the song couldn't be used outside of that scene."

Volition's Bray echoes the caution that approval can often hinge on an artist's personal opinion – making context key.

"The biggest obstacle with licensed music is that someone else owns it," he states. "You have to get their permission to use it. If they don't get the joke or don't feel our game is the right fit for their music, then they have every right to not give us permission to use it. That's the nature of the beast."

Gaillard summarises: "Choose your titles wisely. The licensing process is quite long and complex. You need to be sure of your choices because, when the process is in motion and a contract is formed, it's pretty hard to backtrack.

"You have to be careful with titles whose rights belong to several artists or labels. It's almost always impossible to cut or edit the titles. You also have to explain why, where and how you would like to use each title.

"For a band to be included in a game is a new thing for many groups; some are afraid of being associated with an unknown context/image and it can be a challenge to persuade them."

LICENSING LEGALITIES

Even once you've pinned down an artist and track to use in your game, there are legal hurdles you'll need to cross.

"Unlike big game publishers that have departments dedicated to this, the legal process could be really problematic for smaller studios," says Dontnod producer Luc Baghadoust. "The music business has its own set of rules that you need to explore before going on this road, rules that can also differ in the country your artist or publisher is from."

"Just be smart about what you're getting yourself into," offers Bray. "I highly recommend you seek out some sort of legal advice, as music copyright law is a minefield of backwards ownership and hidden clauses. And did I mention it's expensive? I'm not kidding. I don't think people realise just how much it can cost to put someone else's music in your game."

While small studios working to a tighter budget are unlikely to ink a deal with Taylor Swift or Beyoncé, there are cost- and effort-saving options for those wishing to make use of licensed music.

"The internet is full of licensing companies where you can buy tracks for your game for really cheap, and all the legal is included as part of the deal," suggests Lapington.

"If you want a specific song from a specific band, then it gets

more expensive and the legal becomes more complex. How much it costs depends on the popularity of the track and what the artist/publisher wants.

"Also, remember that there are multiple costs, such as an artist's fee, plus a publisher fee. For games, you'll probably need worldwide rights, which may well involve different publishers for different regions.



“The music business has its own set of rules that you need to explore before going on this road.”
Luc Baghadoust, Dontnod

"Be aware that if you use a track on the credits, it may cost more than other places in the game. Costs vary and change, but I'd recommend going into negotiations with a figure in mind. Use an agent, as they will help with budgeting and so on.

"I would like to see more games companies using licensed music, especially when it comes to local artists. This is not expensive and benefits both parties."

While it may lack the draw and recognition of big-name musicians, Bray also praises the affordability of using lesser-known performers.

"Your best bet for small budgets is stock music," he agrees. "If you have a smaller budget, you're probably better off looking for music options to enhance fun and exciting gameplay, rather than spending money on musical showpieces. You could ask musician friends to write music or search royalty-free music sites.

"The internet has opened up a huge venue of royalty-free music, people who just want to get their name out there. Believe me, people aren't going to buy your game because you have that hot track from artist so-and-so. For games, music rounds out the overall experience – it isn't meant to sell boxes."

ENCORE

Today, developers have the ability to meld original compositions, licensed music and dynamic gameplay together to connect with players in brand new ways – and the ways in which soundtracks and gameplay interact with each other will only continue to grow.

"One thing I'd really like to try is taking the stems from a known song and re-editing them to fit a dynamic game scene," enthuses Lapington. "Having the lyrics fit to the actions of the game without messing up the original composition would be interesting to see and hear."

While it may be tempting to build a game around technically impressive audio, Bray urges developers to continue to focus on what they know best.

"Do what's best for the story and gameplay you want to deliver," he states. "If you have the time and money to pursue licensed music, then go for it, just be smart about it.

"Otherwise, focus on your player's experience, because ultimately that's what they truly care about." ■



Saints Row IV plays Stan Bush's *The Touch* during a sequence with power armour in homage to the 1986 *Transformers* movie



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Session Highlight: Creating Stories for Games
Matthew Luhn, Pixar



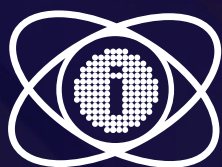
PRODUCTION TRACK

Session Highlight: Art Production for 'Call of Duty'
Claas Grimm, Red Hot CG & Carlos Garcia, Activision Blizzard



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Session Highlight: Hiding in Plain Sight: The Untapped Resource that is Helping Ubisoft to Make Better Tools
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PROTECTING INTELLECTUAL PROPERTY

UKIE CEO Dr Jo Twist details the trade body's new scheme to help devs fight back against piracy

P is at the heart of all games businesses and protecting the value of it is hugely important.

Over the last 18 months, UKIE has been working with our members to create a new service that helps games businesses to maximise the value from their own IP.

Our approach is a combination of education, technology and dealing with IP infringement at its source. Run by one of the country's leading IP experts, Mo Ali, our service includes:

Web scanning

We now provide a web-crawling service that monitors any websites that make unauthorised copies of games available either via download or torrent links. This gives games businesses intelligence about the scale of any infringement. For example, how many times a game has been illegally downloaded and where those unauthorised links are found.

Notice and takedown

Once the infringing links and pages have been identified, we can send takedown notices to get the content removed if required.

Search engine delisting

We work hard to ensure that consumers find legitimate versions of games by letting search engines know to delist sites that make content available without the owner's permission. Google has been very supportive of removing links that infringe upon a games company's copyright. Unauthorised links are usually removed within eight to ten hours.

Regular reporting

We provide bespoke reports to all games companies that use our IP service,



UKIE's services helped *Punch Club* dev TinyBuild remove 1,100 unauthorised links to one of its games that had been illegally downloaded more than 1.6 million times

including how many links have been found and the status of the links. We can increase the frequency of reporting around launch dates, too.

“

Unauthorised links on Google are usually removed within eight to ten hours.

Dr Jo Twist, UKIE

Ad tracking

Many websites that make games available illegally rely on traffic from search engines to generate advertising revenue. We now work with the police and advertisers to stop the flow of money to the sites that give access to these unauthorised files, helping to prevent brands and their agencies placing ads with them.

Mobile game mod tracking

There has been an increase in websites that solely make available modified versions of existing mobile games, that bypass the in-app purchase mechanism to offer unlimited credit and power-ups free of charge. We can track these games and get them taken down.

Proven success

UKIE's service is already being used by games businesses of all sizes who are seeing great results.

By working with *Punch Club* creator TinyBuild we have now removed 1,100 links that were giving unauthorised access to just one of its titles. Managing partner Luke Burtis is convinced of the benefits.

"One of our titles had been downloaded illegally more than 1.6 million times before UKIE helped us stop the activity with their new IP monitoring service," he says. "The scanning tool has been really effective at removing these

illegal links and we're now using it to protect all of our 11 other titles."

Our services deliver additional results for companies that already use a third-party IP scanning service. We were able to show that UKIE's service successfully found on average 20 per cent more links which were not found by the other companies.

All the services above are free for UKIE members and offered at a huge reduction in cost for usual scanning services to non-members.

We hope that they help to reduce the availability of unauthorised games, educate consumers on the negative impact and help UK games businesses to grow. ■



To find out more, contact UKIE's IP co-ordinator Mo Ali via mo@ukie.org.uk



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ALTERNATE REALITIES

CEO **Simon Gardner** tells us why the studio behind Assassin's Creed Chronicles is focusing solely on virtual and augmented reality



Tell us about Climax for those not familiar with your work.

We're an independent game development studio based in Portsmouth, UK and Auckland, New Zealand. Our two studios are about 11,450 miles from each other, but both have a Nandos in very close proximity.

Our history is rooted in console game development, but three years ago we entered the VR space and have self-published *Bandit Six* and *Salvo* with help from Oculus.

By the year's end, we will have seven VR and AR titles on the market and we have just started production of our 10th VR/AR game.

What has been the biggest development for your studio in 2016?

Our next launch will be *Gunsight* on the Gear VR: a fast-paced shooter in the vein of games like *Contra* or *Metal Slug*.

We were also part of the Google Daydream announcement, which was very satisfying.

We have been working closely with Google on a number of VR and AR projects and we have some really exciting games coming out later this year and early 2017.



Climax's Gardner says developing for VR early allows devs to take more risks

Why are you concentrating primarily on virtual reality? Given the lack of an install base currently out there, is this not a risk?

We missed the whole 'mobile' rush a few years ago due to being busy on console, but were determined not to miss out on VR.

Whilst it was a risk initially and we had to invest, it gave us plenty of opportunities to develop core skills and experience at an affordable cost.

By being in at the start, you can take more risks with smaller games and experiences. I can't imagine the cost of trying to go toe-to-toe with Supercell today.

Truth is, we still have two console games in development and we also do contract engineering work – or 'performance engineering', as I've taken to calling it. This is a combination of optimisation and bug fixing that we do along side of the core team – usually an

internal developer – to allow them to concentrate on finishing their game.

What role will augmented reality play in the future of

your company? And what is the importance of mixed reality?

Mixed reality is the merging of real and virtual worlds to produce new environments and visualisations where physical and digital objects co-exist and interact in real time.

This and augmented reality are going to be a big part of our company and probably your life.

Our early success in VR opened some doors to see what some of these mixed reality companies are working on.

HoloLens is an impressive bit of kit that, whilst expensive, is available to buy today.

I'm lucky enough to have been out to visit Magic Leap in Florida a number of times and whilst I can't talk about it, I will say it is deeply impressive and once you try these technologies, your mind races with possible applications.

What impact is this technology having on the games industry?

Ease of use and portability. Hopefully all of the AR/MR devices will obviously be wearable but look cool, be untethered and have sufficient performance and power to last a day.

Just like mobile phones, eventually everybody will have a connected AR device that will be capable of a very

Location: Portsmouth, UK

Best known for: Climax has made a name for itself with *Assassin's Creed Chronicles* and VR titles such as *Bandit Six*

Web: climaxstudios.com

Twitter: @ClimaxStudios

Facebook: facebook.com/climaxstudios

broad range of tasks and will also replace all other existing screens.

Already with VR, you are starting to see new types of controllers and gesture recognition hardware emerging. Couple that with more voice control and eye-tracking, it will open up new experiences and gameplay.

They should also broaden the demographic of players – to some people, a traditional controller is still a pretty confusing bit of hardware.

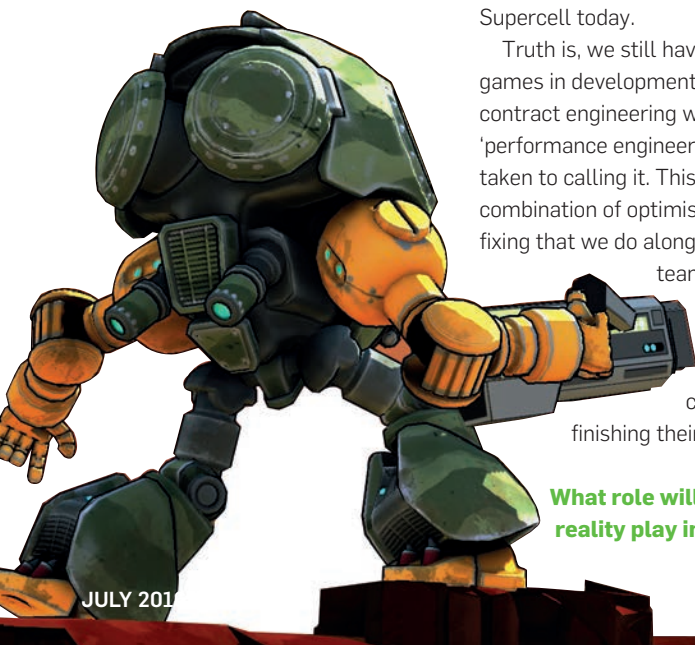
Portability means that the device is always with you and you can play traditional games on a big virtual screen that only you can see, or these new types of games that blend the real environment with rendered scenes in new and exciting ways.

If you work for a company today that makes screens – phones, televisions, laptops and so on – and that company either isn't already investing in AR/MR, then I'd be looking to move.

Are you planning to expand this year at all?

We are actively recruiting now. Our New Zealand studio was initially made up from ex-Gameloft employees, but they have recently made four more hires and we expect that growth to continue through 2016 and 2017.

We were also able to hire more staff recently with the closure of Gameloft's studio in Valencia, who have relocated to the UK. We hope to hit a head count of around 130 by the end of this year. ■



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jobs

YOUR MONTHLY GUIDE TO THE
BEST CAREER OPPORTUNITIES

MOVERS & SHAKERS

Changes at Chinese Room, Supermassive, Axis and more

P40

LEARN SOMETHING

Educational studio Wibbu discusses its recruitment drive

P41

SWEPT AWAY BY AVALANCHE

The *Just Cause 3* developer on why it's the place to work

P45



HOW TO FIND A JOB AT DEVELOP: BRIGHTON

From July 12th to 14th, studios from all across the world will have a unique opportunity to network

July 12th sees the launch of one of the biggest events of the year for the British dev community.

Around 1,800 developers will gather at Develop: Brighton for three days to meet and network, making it an ideal opportunity for attendees to improve skills or look for job openings.

"We offer over 90 sessions across the three days, which gives developers the chance to share experiences and knowledge with each other," says conference director Ali Fearnley. "Our talks focus on practical advice and best practice."

Metal Gear Solid creator Hideo Kojima, 2014 Development Legend award winner Mark Cerny, *Journey* and *The Sims* dev Robin Hunicke, and Vlambeer co-founder Rami Ismail are all amongst the speakers this year.

"It's a great opportunity to hear these inspirational speakers without having to travel abroad," Fearnley adds.

"Networking is a huge part of our event; anyone who registers for a

conference or expo only pass can attend the networking events.

"The whole UK game dev industry comes together in one place so, in terms of making new contacts, it's a no brainer. It's also a chance to listen to talks from all kinds of different studios and see which ones inspire or excite you, plus which ones you could see yourself working for."

From indie start-ups to triple-A companies like Sony and Epic Games, every size of studio will be at Develop: Brighton, possibly looking to hire.

"Depending on who you're looking for we have different streams within the conference – for example, the Indie Dev Day or Indie Boot Camp, if you're looking for aspiring developers and fresh talent," Fearnley elaborates.

"Studios looking to recruit often take a stand in the expo."

"The main advantages for studios are to meet new people, make new contacts and discover new talent and even IP. For example, the now very successful Dlala Studios were discovered and given their first break by Microsoft following a meeting at the Develop expo."

Concerning developers looking for job opportunities, Fearnley has some advice: "It's all about planning your visit before you get there."

"Sign up for our meeting planner so you can organise business meetings in advance with the people you'd like to talk to."

"Don't be afraid to network – it's a really relaxed environment, and our attendees and speakers are a friendly bunch." ■

“

Develop: Brighton is a chance to listen to talks from all kinds of studios and see which ones inspire you, plus which ones you could see yourself working for.

*Ali Fearnley,
Develop: Brighton*

PERSONNEL

MOVERS AND SHAKERS

The latest high-profile hires and promotions



THE CHINESE ROOM

The *Everybody's Gone to the Rapture*'s studio has welcomed two new key members: **STEVE NOAKE** (pictured, top) as lead artist and **CATHERINE WOOLLEY** (pictured, bottom) as senior designer.

Noake joins from Climax, having previously worked at Argonaut, Visual Sciences and Zoe Mode. Woolley was a senior designer on *Alien Isolation* at Creative Assembly and previously worked at EA Bright Light.

Creative director **DAN PINCHBECK** stated: "Steve and Catherine bring a fantastic mix of experience and vision to our team."

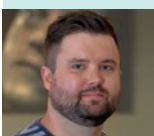


NDREAMS

VR developer and publisher Ndreams has massively strengthened its teams.

These new hires include art director **GLENN BRACE**, design manager **STEVEN WATT**, development manager **FELICITY GRACIE-HERST**, lead animator **SIMON BOSCARO**, producer **ALEXIA CHRISTOFI**, lead programmer **IAN CROWTHER** and senior programmer **TOM WHITTAKER**.

The publishing team has appointed **NADINE OEHMCKE** as digital distribution manager and **JENNY BRAMMALL** as associate community manager.



SUPERMASSIVE GAMES

The British indie dev has announced three senior hires in its VR team.

STEVE BROWN (pictured, top) joins as audio director, having worked at Lionhead for more than five years.

GARY NAPPER (pictured, middle) has been appointed as game director. He previously

was lead designer at Sony, working on VR projects.

IAN PALMER (pictured, bottom) has been hired as art director. He has worked at studios including EA UK, Criterion and Codemasters.

Supermassive Games MD **PETE SAMUELS** commented: "These hires signify our ambition to be a leading UK studio producing powerful experiences."



AXIS

The Glaswegian CGI firm has hired **JON NEILL** as head of lighting, rendering and compositing.

He previously held senior positions at visual effects studios MPC and Cinesite, where he worked on movies such as *Jungle Book*, *Skyfall* and *Harry Potter*.

Neill said: "Working at Axis will allow me to be part of an expanding company that is exploring existing and new formats involving CGI."



PRODUCER OF THE MONTH

We catch up with **Martin Newing**, producer at *Everybody's Gone To The Rapture* and *Dear Esther* studio The Chinese Room

Describe your typical day.

We start every day with a team scrum. This gives everybody the opportunity to talk about what they're currently working on, and to advise of any issues or blockages they may be facing. Two of our senior leads work off-site, so ensuring everyone is on the same page at all times is crucial.

The rest of the day is really dictated by the needs of the projects. We currently have multiple projects underway, and each of them has very different requirements: a self-funded title that is in constant iteration, VR prototyping that requires a whole new design approach, working with Curve Digital to port *Dear Esther* to PS4 and Xbox One, and wrapping up work on the PC release of *Rapture*.

What are the biggest challenges you're currently facing?

My biggest challenge is keeping all of these plates spinning at the same time, especially within such a small team. In terms of specifics, the challenges are unique to each project. For our self-funded title, it's all about holding our nerve as we iterate on the concept, making sure we take the time to 'find the fun' whilst always keeping an eye on the overall schedule to ensure we have enough budget left to deliver a finished game at the end.

Conversely, our VR work has thrown up different challenges – it's such a unique platform that it's forced us to effectively 'unlearn' a lot of the standard design lessons for a first-person experience, in turn making it difficult to give confident,



accurate predictions when it comes to planning and work estimates. To counter this we've had to be very diligent in scoping the game upfront, ensuring we don't over-reach in terms of ambition and have enough contingency to account for any missteps or dead-ends.

What advice would you give to someone looking to forge a career as a producer?

Focus on the team. I've worked with a lot of managers over the years, and it's surprising how many see their role as dictators rather than facilitators, passing down edicts from above rather than nurturing and protecting their team to allow them to do their best work.

You have a responsibility to deliver the game on time and in budget, but doing so is a lot easier when the team is engaged and invested in what they're creating. It sounds obvious, but a team that believes they are working towards an achievable goal will be more creative and engaged than one that is disillusioned. ■

In association with



PLAYING TO LEARN

Wibbu is an educational games studio with increasing ambitions. Co-founder Liam McGinley tells **Marie Dealessandri** about what we can expect from the studio, which is currently looking to hire

Wibbu's journey started in 2013 in a "freezing cold flat out in the Cotswold countryside" according to Liam McGinley, the studio's co-founder and CTO. In just a few years, what began as a mobile apps company has become a fully-fledged educational games studio.

"We develop games that teach languages through immersive, fun, story-driven RPGs," McGinley says.

The firm's flagship title is simply entitled *Wibbu* and specifically designed for Spanish speakers who want to learn English. Since the title launched on iOS and Android, it has seen huge success, reaching No.1 in the Education category rankings in over 20 countries.

Subsequently, Wibbu doubled the size of its team, which is now composed of staff from eight countries, speaking 15 different languages.

"We have recently completed a round of investment that has enabled us to move into a new office right by the iconic Tower Bridge," McGinley details.

"The new place is three times the size of the old one, which means we're growing the team too. We've already had a number of people come and join the fun, but we're still looking for a few more. The main focus of this expansion has been to bring in some core game development experience to complement the current team."

For example, Wibbu is looking for someone in "gameplay development with a focus on third-person character combat and AI," McGinley details.

"We're also looking for someone to join our marketing team to create and manage the launch campaign for our next title. We're on the lookout for ambitious people who want to empower others to become better."

A SPECIAL PLACE TO BE

For those interested in applying to work at Wibbu, here's a premium tip from the CTO.

"I love it when I receive interactive CV; it stands out after reading 100s of



Wibbu is currently working on a 3D RPG for PC and mobile under the working title *Heromancer*

PDFs," McGinley enthuses. "I recently got one where I had to defeat a boss level before 'unlocking' their previous experience.

"I also like to see a title timeline so I can step through their development journey; many candidates only list studios. For those applying for the less visual roles, I get frustrated with lists of keywords and bullet points. Ensure you highlight what you've been working on."

Working at Wibbu also means having the opportunity to learn new skills and make a real impact on the life of the company.

"As an educational studio, we believe in growing ourselves as individuals too, so we give people opportunities to learn new things," McGinley reveals. "We take it in turns to run short workshops to educate one another. We've recently held ones on Arabic writing and RegEx, and have an

upcoming one on Pogs. As a young studio we also offer share options to all of our employees as we believe that everyone deserves to share in the studio's success."

THE HOLY GRAIL

Wibbu is now working on its next game, under the working title *Heromancer*.

"We're currently in preproduction on a brand new 3D RPG for mobile, tablet and PC," McGinley details.

"We'll be teaching both English and Spanish, and there will be more languages to follow soon. This game will be aimed towards teaching a slightly older age group than our existing title, so it's an exciting time for us.

"In the long run, we'll continue to teach more languages and look to develop other games for different age groups, and potentially explore opportunities with books, TV shows, toys and films.

Ultimately, VR is the Holy Grail for the world of language learning."

McGinley expands on VR's prospects for learning languages.

"2016 is geared up to be the year of VR and from a language-learning perspective it's an area that we are very excited about," he explains.

"Immersion is integral to language learning and the next best thing to going to a country where people natively speak the language you are trying to learn is for that country to come to you. VR can provide that – it could be the ultimate educational environment."

VR is not the only area Wibbu would like to further explore, as the company is also looking to increase the overall quality of its games to meet people's increasing expectations of mobile gaming.

"We put a focus on trying to push mobile hardware as much as possible to provide a beautiful and enjoyable environment for people to learn in," McGinley says.

"Knowing another person's language is the key to accessing their way of thinking. We are here to inspire people to use the power of language in their everyday lives and to communicate with the rest of the world." ■

“

I recently got an interactive CV where I had to defeat a boss level before 'unlocking' their previous experience.

Liam McGinley, Wibbu



WHY CV BAY IS **AVOIDING THE BEACH** IN BRIGHTON

The recruitment firm tells **Develop** about what they're hoping to achieve at this month's conference



Developers will be heading to this year's conference to learn new skills – but also to look for the next step in their career



Formed in 2006, CV Bay is a Birmingham-based recruitment agency that specialises in the IT and games markets – and it's ramping up its efforts in the latter.

One of the biggest drives to raise the company's profile in the games industry is its presence at the upcoming Develop: Brighton three-day conference that takes place on Britain's south coast this month.

Katie Edwards, leader of the firm's gaming team, told *Develop* what CV Bay hopes to accomplish there.

"CV Bay's gaming team will be in Brighton for the full three days of the conference and attending the awards," she says. "We will be networking with existing clients and are hoping to meet as many new contacts as possible."

"We recruit for a wide range of roles within the games industry and are excited to network with the gaming community at this prestigious event. Anyone in the industry looking for a new opportunity or wanting to talk about recruitment should come and find us for a chat."

The firm has already established good relationships with studios of all sizes across not only the UK, but also Europe. As such, it helps developers find employment across a wide range of roles, spread over every major discipline in games development.

By heading to Brighton, Edwards says the recruiter hopes to connect with even more job-seekers to see if they can help them find the role they desire. But it's not just individual developers CV Bay is hoping to help.

whether you are a client looking to fill your next role or a candidate looking for your next opportunity."

MEETING IN PERSON

Major conferences and networking events have become a highly successful way to seek out new job opportunities. While many attendees will be there to learn from the various speaker sessions or browse the expo, there will be plenty looking for options on how they can advance their career.

If you're unable to attend Develop: Brighton this year, Edwards advises developers to look into registering for similar events if they're interested in finding out more about the job opportunities available.

"Events like Develop are a celebration of the best in the industry and it is a fantastic opportunity for studios and industry professionals to network and meet new contacts," she praises.

"It is the opportunity to have time out of a busy schedule in the studio and network with like-minded people that are not only potential future appointments, but also a chance to chat to recruitment specialists to find out more about possible recruitment partnerships."

Like many companies heading to Develop: Brighton primarily for the purpose of networking, the CV Bay team plan to establish a foothold in the Hilton Hotel bar throughout the week. ■

“

Events like Develop are a fantastic opportunity for studios and industry professionals to network and meet new contacts.

Katie Edwards, CV Bay

"Any studios that are also looking for a new recruitment partner should also seek us out," Edwards urges. "We provide a first-class service that our customers can rely upon to deliver results –



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CAREER ADVICE

GET THAT JOB

This month: **Senior Game Producer** with Bulkhead Interactive's Joe Brammer

How would someone come to be in your position?

I set up my own company after university. Anyone can do this.

I didn't intend to be a producer – I was a games artist first, and I still do art. But for me, being a producer is about first and foremost being a leader and taking responsibility for a team, so the most talented people can exercise their skills.

Being very self-aware of my skills lead to me being a producer, knowing the strengths and weaknesses of myself and my teammates.

What qualifications do you need?

Producers traditionally come through the QA route. In terms of skills, a producer should be an excellent leader first, always making sure they're willing to go the extra mile, keep their team happy, and keep the

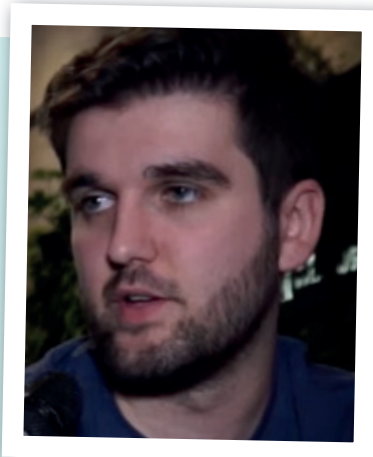
game going. A lot like a house whip. Showing that you're able to lead a team and bring a positive atmosphere to the studio would be a first for me.

At Bulkhead, we always look at the person first. Qualifications are a minor part of proving you can do the job – the best way to prove something is by doing it. Work on mod teams, indie games and free projects. Offer your services on weekends or evenings.

Ultimately, if you really loved doing this, you wouldn't mind committing some of your playing time to working.

When you are interviewing someone, what do you look for?

We're a team at Bulkhead. We spend a lot of time together and we've been through some tough times. We aren't looking for a nine-to-five person, but we aren't looking for someone to chain themselves to their desk; we want someone who stays because they



want to, but goes home because they have a life as well.

Most of us in the studio play games in the evening together, drink together on the weekends, and have BBQs when the sun's out. We're a real family here.

“Qualifications are a minor part of proving you can do the job – the best way is by doing it.”

Joe Brammer

What opportunities are there for career progression?

It's difficult to know the career progression of a producer. I see it as a gap filler. If we need some extra art, I'll jump on that, if we're struggling with audio I'll help out there. If we need to deliver some mail I'll be at the post office.

Being a producer is about supporting and leading a team and keeping a game moving. Knowing when to give people a day off and when to say 'Let's get back to work'. Producers can go on to be directors and lead designers, but really a producer is such a broad term that you yourself have no idea what you really 'do'.

Why choose to follow a career in your field?

It's incredibly rewarding to be valued as a leader, when you have a team of people who believe in what you're doing and respect your decisions whether they like them or not.

I'm not a control freak, but I'm good at 'stuff'. So if something isn't working or something doesn't look good, I'll go and do it myself. I like having that flexibility. ■

SKILLS AND TRAINING

This month: Marketing and communications officer **Orla Garratt** explains what the University of Kent has to offer to aspiring devs

The University of Kent offers Computer Science undergraduate and master's courses in its Canterbury-based School of Computing.

"Computer Science BSc provides the foundations of computing for a programming career in the games industry, but doesn't narrow the students' career options if they choose to work in a different industry at a later date," marketing and communications officer Orla Garratt explains.

"The Computer Science Conversion MSc is for graduates of any discipline who are new to computing and is often chosen by those wishing to change their careers."

Of course, the University of Kent also provides MSc for graduates in computing and related subjects.

Students of the university have access to a 'makerspace', called The Shed (pictured, below), which can be used for any personal or module-based project. It is equipped with hardware such as Arduino and Raspberry Pi, and software environments such as processing, wiring and Leap Motion for virtual reality.

"The Shed is a space to support new kinds of learning by taking advantage of rapid prototyping and the increasing accessibility of electronics and engineering," details Garratt.

"It is equipped with 3D printers, milling machines, a laser cutter and technicians to help students with their projects."



Overview: UKC offers undergraduate computer science courses, as well as master's programmes for graduates of any discipline.

Address: School of Computing, University of Kent, Canterbury, Kent, CT2 7NF

T: 01227 824 180

E: computing@kent.ac.uk

W: www.cs.kent.ac.uk

Garratt continues: "We are well known for our high quality industrial placements. We have strong links with the industry and two dedicated placement officers. The high rate of students on placements – about 80 per cent – is linked to our students' higher-than-average starting salaries."

The University of Kent currently has students on placement at IonCube in Canterbury, working on *Minecraft* projects, at Feral Interactive in Wandsworth, at Ash Gaming in London Bridge, and at Liverpool's Lucid Games. ■

RECRUITER **HOT** SEAT

Avalanche Studios talent acquisition manager **Karin Bogren** discusses what being an 'Avalancher' means and why you should become one by joining the Just Cause and Mad Max developer

What does your studio offer that others don't?

In both our studios – New York and Stockholm – we strive to ensure an industry-leading work/life balance. Overtime is an exception, not the norm, and we offer everyone 25 vacation days from their first day of employment. Parental leave is encouraged for both men and women.

Our open-world mindset extends even to our physical space. We don't believe in confining creative talent within walls, figuratively or literally. The founders still run the company and take part in everything we do, just like they did over a decade ago, and they sit in our open-space office like everyone else.

The fact that we are a privately-held company has its advantages. The stock market doesn't dictate which games we create – we do. Strategic decisions are not made by some far-removed board and we are not locked into working with one parent company, which means we can choose our publishing partners wisely.

What opportunities and perks are available to employees?

Our benefits are above and beyond industry standards. We offer an eight-hour workday with limited overtime. In addition, we offer all our employees five weeks of paid vacation, which includes a two-week summer holiday break when the entire company shuts down. We offer 100 per cent company-paid benefits and opportunities for our employees to work in both our studios.

We think it is important to constantly develop our talent by offering clear career paths and development plans. We strongly believe in knowledge-sharing between teams, projects and individuals. We arrange regular workshops where Avalanchers can share information they acquired during a trade show, lecture or trip to a partner company.



Avalanche's open-world game design is mirrored in its open workspace, with all of the staff working together

What should aspiring devs do with their CV to get to an interview?

They should make sure their CV covers their full expertise, as well as a list of all the technology and programs they have worked with so that we get a clear view of their competencies and previous experience.

In addition to that, we want to know why the candidate wants to join our company and what they can bring to the table; what is unique about their experience, why are they passionate about gaming in general and open-world games in particular?

Who is the best interviewee you have ever had?

The best interviews are the ones where you can see that the candidate

has a true passion for games and a real interest in joining Avalanche.

If we have to choose between someone who ticks all the boxes in the job description but shows no real excitement for the job, and a candidate with less experience but a genuine interest in our studio and our games, then we go for the latter. Potential and attitude is as important as the technical knowledge.

What advice would you give for a successful interview?

Be prepared and do your homework; get updated on what is going on in our studio, check out the games we have released and do some research on key people in the organisation.

Once they are at the interview, they should just relax and be themselves.

CURRENTLY HIRING

Company: Avalanche Studios

Location: New York (US), Stockholm (Sweden)

Hiring: All disciplines; animation, art, design, tech, QA and more

Where to apply:

avalanchestudios.com/careers

We are a fun bunch of people and try our best to create a relaxed informal atmosphere during the interviews.

What is the international recruitment process like?

We have a very diverse workforce and welcome talent from all over the world, so we are used to dealing with visas and immigration paperwork. We also support our new hires throughout the relocation process and make sure they are settled in well in their new city.

It is important to have a structured introduction process, even more so when the employee has moved from another country. Creating a social network when you are new to a country can be challenging but we try our best to facilitate that process. We arrange game nights, have running teams, soccer teams, wine clubs and everything in-between. You are never bored at Avalanche. ■

“

Applicants' potential and attitude is as important as their technical knowledge.

Karin Bogren



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Deadline for inclusion: July 20th

SOUND 'SOURCE'

Audio outsourcers
on why devs should
work with them

P50

VOICES OF REASON

How to get the best
vocal performances in
your dialogue

P52

EAR CANDY

Masters of sound design
give their best advice
for making your game's
audio come alive

P55

DICE's Ben Minto says nailing
'universally-known' sounds
is key – especially with iconic
licences such as *Star Wars*

SOUND THINKING

Often considered as inferior to visual flair by developers, quality audio design is just as important to delivering an engaging virtual experience. **Matthew Jarvis** speaks to aural authorities from CD Projekt Red, Supermassive Games, DICE and Coldwood

If you've ever attempted to play a game with the sound off, you'll understand just how important effective audio design is. From the patter of footsteps over pavement to the soft 'thunk' announcing that a bullet has found its mark, sound effects are both immersive and informative, complementing gameplay mechanics, narrative and visuals alike.

It's very easy to point the finger at poor audio design – sword combat would quite literally lose its edge if the clash of blades was accompanied by a dull thud rather than the expected sharp metallic tang – but describing fitting SFX is a harder task.

"Quality starts by getting the universally-known sounds right," offers Ben Minto, senior audio director for *Star Wars Battlefront* at EA DICE.

"It is also essential to keep the whole audio experience together; keep the sounds existing within the same space,

with care taken about how sound travels in that space, how loud and bassy it is, and how it relates to other sounds."

CD Projekt Red senior audio programmer Colin Walder agrees: "All the little things add up, even if they

“

The fewer static
sounds you do,
the better the
outcome
will be.

Krzysztof
Lipka, CDPR

might not seem
that significant.

"Also, being
reactive and
responding to

context – it really is the challenge with interactive audio to go beyond a simple or straightforward implementation."

"These last couple of years we've put a great emphasis on the interactivity of the whole soundscape," elaborates Krzysztof Lipka, senior sound designer at the *Witcher III* studio. "For us, great quality audio requires tons of small chunks of SFX that are 'in-between' and controlled in real time. It's really important to remember that the fewer static sounds you do, the better the outcome will be."

CHOICE OF INSTRUMENT

As with any element of development, the evolution and arrival of increasingly advanced tools has

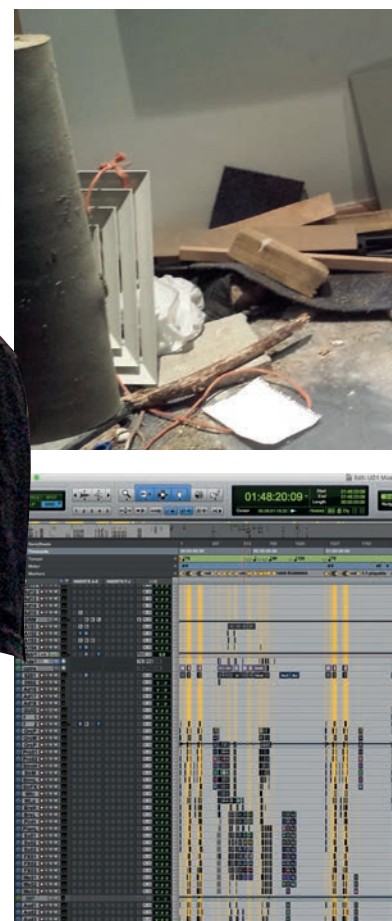
allowed audio designers to do even more with the soundscape of virtual worlds.

"The huge steps in audio tech in the last few years, especially in middleware, has led to more in-game prototyping," observes Supermassive Games audio director Barney Pratt. "Across the industry, linear DAWs are still the staple for producing assets. However, we increasingly prototype and iterate on audio systems at runtime. This is not only nice to do but actually a must-have, due to much closer integration of audio with in-game parameters."

Regarding his experience imbruing horror game *Until Dawn* with an atmospheric effects track, Pratt reveals: "We record new SFX whenever we can, but also have a library of sounds that is always being added to. Also, Sound Forge is a staple for various processes around sample editing – the batch process has saved our bacon on more than one occasion."



The Witcher III composer Marcin Przybyłowicz feels that audio interactivity in games has 'come full circle'



Lipka echoes Pratt's sentiment that an effective batch management tool is indispensable, especially on a title of epic scale such as *The Witcher III*.

"In addition to Wwise and our in-house engine tools, we use Nugen Audio LMB," he says. "It's brilliant for batch volume management on huge numbers of files. That's what we've used to even out all our VOs in the *Witcher* series – more than 270,000 files in total."

Håkan Dalsfelt is an audio designer and programmer at Coldwood, known for platforming title *Unravel*.

"The latest generation of consoles gives us a much larger audio processing budget," he states. "You can play around a lot more with real-time DSPs instead of editing the source files offline."

Although the latest console hardware has opened new avenues for audio designers, creative director Martin Sahlin says that Coldwood still makes use of more traditional methods.

"We're fairly old-school," he suggests. "Most sound effects are from libraries, we don't have the resources to record custom sounds for everything and nowadays there's a lot of high quality libraries that are really price-worthy."

Triple-A's growing ambitions have resulted in a greater workload for audio designers, but Minto says games'

post-release lifecycle can present as much – if not more – of a challenge.

"It's very rare these days to produce a gold disc," he says. "Patches, DLC and expansions allow the scope and scale of a game to increase exponentially over its lifetime."

"This increase in scope and complexity has driven us to use a more inherited modular system when sound designing, with sounds being constructed at runtime, versus previously being rendered from within a DAW."

“

There has been an awakening to the potential of audio as a narrative tool.

Colin Walder, CDPR

FUTURE SOUNDS

In line with the growth of emergent gameplay in open-world titles, audio is similarly evolving.



"Games in general are leaning towards more interactivity in musical design," explains Marcin Przybyłowicz, principal composer on *The Witcher III*. "I feel like history is doing a full circle on our watch – there was iMuse, which was the pivotal achievement of interactivity during the MIDI-based era of game music, now we're seeing development of the same philosophy in contemporary recorded soundtracks. On top of that, there are experiments with procedurally-generated music in games."

However, it is an entirely new sector that is especially shaking up the way that sound is implemented.

"Head-related transfer function systems and binaural encoding are sure to make further impacts on the quality of the audio experience, particularly in VR," predicts Pratt. "In the same way that impulse response reverbs made a major leap in quality, object-based audio systems will see major advances in 3D reverbs, reflections and refraction."

"Mixing in VR offers great opportunities to play with the effect of sound proximity to the player."

We'll see an increased attention to detail in terms of sound positioning as audio needs to intricately replicate real-world audio behaviours."

Sahlin cautions: "Everything has to feel just right, and the position of the audio has to be spot on, or there'll be a big disconnect. Ambience and such will all have to be done in 3D."

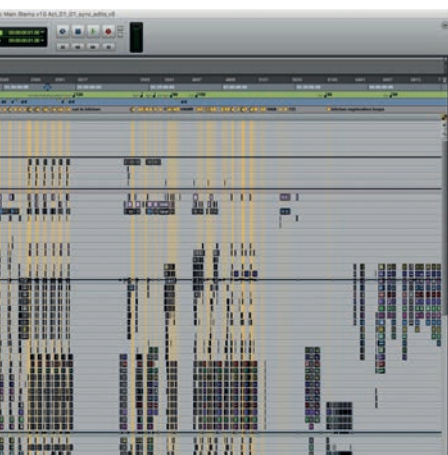
Walder is less certain of VR's transformative effect on audio design.

"I'm not sure that it will change the way we do things much, except that we can focus more on our ideal surround-sound vision of the game," he states. "The most interesting thing will be custom engine changes and enhancements that teams come up with to find new ways to implement audio. It doesn't even have to be technologically complex; sometimes I see people come up with a technique that's really simple but hasn't been tried before and works really well."

Lipka agrees: "I'm very sceptical about VR. It's rather going to be a steady evolution of storytelling through audio."

STORY BEATS

This all comes back to a single fact: games are getting better at telling more important stories, in which audio has – and will continue to – played a major role.



Above: *The Witcher III* expansion *Blood and Wine* includes bosses where combat mechanics are synchronised with the game's music

Left: The foley (top) and Pro Tools software (bottom) used to score Supermassive's *Until Dawn*

"There has been a gradual awakening to the potential of audio as an important narrative tool – that it should be thought of throughout the process of building stories with games rather than just something that gets tacked on at the end," says Walder. "We'll start to see more games doing audio that goes beyond simply 'X event triggers sound Y' and being really creative to support and drive narrative.

Lipka observes: "I see a great bias towards storytelling through audio.

"Nowadays, more games tend to show increasingly complex and mature storylines, full of non-linearities and even real-life dramas. It's clear that such an approach forces the industry to put more emphasis on sound as one of the main means of conveying narrative.

"It's a very exciting trend because as a byproduct it produces better tools for sound designers and draws experienced movie sound engineers or composers into games. Recent technical novelties unify movie and game mixing environments, making the transition less painful.

Nowadays, it's not so uncommon to see a great movie composer or sound designer's name in a major triple-A game's credits.

"Hopefully in the future such trends will make the industry evolve and push games even further into new regions or directions." ■

AUDIO ANECDOTES

BREAKING WIND

Barney Pratt, *Supermassive*: For *Until Dawn: Rush of Blood* we put together a system of sounds for turbulence on the ears which varied depending on how fast you were travelling and the orientation of the head. The only thing that gave us the sharp, close, air-ripping sound of close-up wind turbulence was the sound of blowing directly onto a mic. Of course, this is something audio guys spend most of their careers trying desperately to avoid.



DANCING WITH DEATH

Colin Walder, *CD Projekt Red*: Synchronising music with combat in *Blood and Wine* started with a conversation about what features we would like if anything was possible. We went away and came up with a way to do it by syncing AI attacks to the music. It took some convincing of the AI designers that it wasn't going to break their combat design, but once we showed them they got really excited. In the end we didn't get to take it as far as we would have liked due to time constraints, but we managed to implement it on a couple of the bosses – considering we started with an 'impossible' idea, that's pretty cool.



AS REAL AS IT GETS

Ben Minto, *DICE*: Whilst I was still at Criterion, I was working on the pre-production for the audio for *Black 2*. As a player, you could interrogate a suspect and force your pistol into his mouth. We couldn't find anything suitable in the library and faking it wasn't working. So, I lost the coin toss – and a part of my tooth. We never found the sight that snapped off the airsoft pistol as it tore into the top of my mouth. We only did it the once and it sounded great, complete with my muffled cry and choking. A reminder that sometimes there is nothing quite like the 'real' sound.

BURIED IN YOUR WORK

Martin Sahlin, *Coldwood*: Håkan [Dalsfelt, audio designer] had a bit of a (funny) scare during *Unravel*. He needed to record a zipper sound, and we don't really have a proper studio. To find a silent place he decided to use the room where we store all the empty boxes, old hardware and other junk. He accidentally started a junk avalanche that made it impossible to open the door from inside. Luckily, his colleagues came to the rescue.





LEND US YOUR EARS

Audio outsourcers may seem like another service devs have to splash out on, but it's more akin to bringing in extra – and specialised – staff. **James Batchelor** finds out more

Audio production can be extremely time-consuming and demands significant resources if you want your game to sound as good as it looks.

As such, a plethora of companies have risen over the years dedicated to audio outsourcing. But why do developers even need their support in an age of accessible audio tools such as Fmod and Wwise?

"Full-scale industry-standard audio production facilities are expensive to purchase and maintain, so it often makes financial sense to hire an audio outsource company," says Sounding Sweet MD Ed Walker. "Developers are able to keep their internal headcount consistent, while also benefitting from our expertise, equipment and studio facilities."

93 Steps co-founder Francesco Libralon adds that audio specialists may have more range than in-house teams: "If devs want to create music and sound across any genre and mood they would need several composers

and sound designers. This would be really expensive compared to collaborating with an audio company."

INSIDER KNOWLEDGE

Visit any audio firm's website and you'll be confronted with reams of information on the services they offer – but what should developers demand?

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More developers are using these middleware solutions, thanks to price drops for the licences.

Lorenzo Scagnolari, 93 Steps

Many outsourcers stress that they come from development backgrounds, and therefore not only know what studios expect but are also able to fit into their workflows.

"We can either act as an overflow to your own audio team, or alternatively, we are also very capable of taking on larger chunks of work, or whole projects,

She goes on to observe that the ongoing democratisation of games development technology also enables audio firms to match developer practices.

"On many games, we have a build, audio middleware and, for some teams, we'll have the Unity/Unreal engine to add the sounds as devs would in-house," she says. "At the start of the game, we'll go in and discuss toolsets that may be needed to help add audio to the game like animation editors."

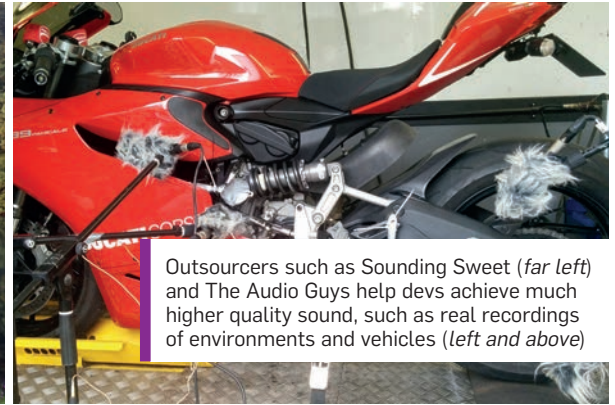
93 Steps' co-founder Lorenzo Scagnolari agrees, adding: "Middleware that helps companies like ours to integrate audio directly inside devs' projects are quite a solid reality nowadays. More developers are using these middleware solutions, thanks to price drops for the licences.

"This is definitely helping outsourcing companies like us to give developers a complete and also affordable service: from the beginning of production to the very end."

depending on what is required," says The Audio Guys' audio consultant Tim Bartlett.

Adele Cutting, director of Soundcuts, adds: "We are creatives but also, and key to the client, a service provider."





Outsourcers such as Sounding Sweet (far left) and The Audio Guys help devs achieve much higher quality sound, such as real recordings of environments and vehicles (left and above)

That said, Morton believes audio outsourcers have to work hard to keep ahead of the curve in terms of technology – primarily because the vast majority of developers can't afford to do so.

"We have to be fluent in using every piece of software and middleware on every platform, which enables us to hit the ground running when it comes to helping a company with their project," he says.

Of course, the continuing improvement of audio technology means the gap between what studios and outsourcers are capable of won't become too wide.

Andrea Ballista, audio director at Keywords Studios, says the rising adoption of DAWs and middleware integration will help with this: "We're already moving in that direction, integrating existing tools with proprietary tools, creating a unique mix of solutions each of our partner."

BRIEF ENCOUNTER

To get the most out of any partnership with audio producers, the outsourcers need to know as much as they can about your game.

"It's usually great to get as many references as possible from the very beginning," says Scagnolari. "These references don't have to be only audio ones. Artistic sketches like artworks or plot samples will get us deeply into the project itself."

Nimrod Productions' MD Richard Aitken says a studio visit can be extremely beneficial: "You've no idea how much quicker a trailer mix comes together when you've been invited to come and sit in-house for a few days."

over the possibilities, then ask us to come and have a chat, and we can discuss the best way between us," says Bartlett. "Or maybe just give us a build, some docs, and a rough remit, and ask us to tell you what you need."

Don't be surprised if audio outsourcers suggest alterations to your game's sound, even if you have a thorough brief. Crucially, creative control remains in the hands of the studio.

"Tweaks and changes should be expected," says Aitken. "A good audio

BEING OPEN

As with service providers in many sectors, audio firms stress the need for constant and open communication.

"Communication is king," says Ballista. "The engagement level between producers needs to be extremely high, not only at the beginning, but during the whole project, so that we can bring the original development vision into the international development scenario."

Aitken predicts that, as the quality bar continues to rise, more devs will turn to outsourcers for their audio needs.

"As the games industry moves ever more toward a 'film-style' business model – where production staff are largely specialists and on the books as permanent house salaries – we will see the requirement for deep production experience come to the fore," he says.

"The people in audio land are some of the most creative and inspiring people I've met in games. I'm astounded on a regular basis with some of the creative artistic developments in audio. Game audio tech and creativity is leading the sound world in all media." ■

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We are creatives but also, and key to the client, a service provider.

*Adele Cutting,
Soundcuts*



Not quite sure what you need from your game's audio? Fret not.

"If you are not sure what you want and need, but know you can't do it in-house, and don't have time to pour

professional knows how to get the audio the client requires; it's not just about writing a great tune, but about helping the game developer realise their artistic and commercial vision."

SOUND OF THE FUTURE

Virtual reality presents new challenges for audio creation and is often touted as crucial to a comfortable VR experience. Fortunately, outsourcers are embracing this new technology.

"With the increased momentum behind virtual reality leading to more players experiencing game audio through headphones, we are extremely excited to see the potential increase of focus upon the overall audio experience," says Sounding Sweet's Ed Walker. "Not only will this potentially increase the number of

games exploring advanced immersive audio technology, such as binaural audio, but with faster CPUs comes the increased scope for generative sound synthesis at a runtime level, taking us beyond traditional sampling methods.

"This allows for the development of procedural audio which scales accurately from frame-to-frame with precise sync across all game animations, therefore completely eliminating the typical aural fatigue that is encountered via standard asset repetition with basic modulation. These technological audio advances

are leading to developers investing in high quality audio, both from their internal audio teams and outsource partners."

Solid Audioworks' Will Morton adds: "Audio tech normally progresses smoothly, so it's usually easy to adapt to developments in audio tech, but VR is so completely new that everyone had to start with a clean slate. The tech still feels in its infancy, but already people are getting amazing results. We're really excited to see where it goes, especially seeing as developments move faster as more people adopt the tech."





Ensuring actors are completely immersed in your characters and world is key to producing good performances

VOICES OF REASON

Quality voice performances are becoming the standard, rather than the exception, in games. Audio firms and actors tell **James Batchelor** how to make the most of your dialogue

Gone are the days of reading reams of text to gather information about story and characters. Gone are the days of the silent protagonist. Now everyone in video games has a voice and something to say.

This has dramatically increased the workload for developers. While *Morrowind* only had a handful of spoken lines, *Skyrim* has over 60,000 and *Fallout 4* features more than 110,000. Bethesda claimed recording for the latter took several years.

As daunting as this might seem, voice acting has become an integral part of bringing your title to life and devs striving for the best possible performances are raising the quality of games in general.

"When games are produced and recognised for great character and voice work, it's good news," says OMUK MD Mark Estdale. "It sets the bar as a wake-up call to everyone."

BAFTA's recent special event in Los Angeles recognising and awarding Amy Hennig for her achievement as a visionary writer and director is a sublime example. Amy has written large what

can be done. Even indie games like *Her Story* and *Firewatch* help set the bar by demonstrating what can be done."

Ben Ryalls, Side's business development manager, agrees: "Quality of performance has become increasingly important over the last few years. Developers are appreciating the relatively low-cost, positive impact this can have on the overall game experience."

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Developers are appreciating the low-cost, positive impact performance quality can have on the game experience.

Ben Ryalls, Side

"The more titles where high-quality performances are recognised and commented upon, the more noticeable the poor performances in other titles become."

Casting, directing and recording actors for your game can be a colossal task, with even the biggest triple-A studios turning to the likes of Side and OMUK for help. With good reason, these firms say: they can bring a level of professionalism to the process that almost no developer would be able to recreate.

"A professional director will make a huge difference to the level of performance you can achieve in a voice recording session," explains Ryalls. "By having a director involved from casting right through to final pickup recordings, you ensure you have someone focusing on continuity of quality and performance throughout."

"Professional actors will also bring a better performance – the more experienced and the better trained they are, the more equipped they are to bring a character to life."

Voice actress Posy Brewer adds: "Use proper audio recording studios. Some people rely on using the same resources and end up using the same people that you hear again and again, and it doesn't bring variation to the

game. Always use voice actors who have had training and also have a good microphone technique. If you're working directly with an actor, make sure they are have a broadcast-quality studio."

The need for a decent studio is vital, as this will have a major impact on the quality of your recordings – something that can detract from an otherwise impressive game.

"Nothing is worse than a great performance that has been completely spoilt by recording in a room with bad acoustics," says Soundcuts director Adele Cutting. "Smaller companies may think recording in a studio is cost-prohibitive, but that is certainly not the case."

"Bad acoustics completely break the illusion of believability and bring you out of the game world. And don't get me started on bad microphones and mic technique."

TIME TO TALK

The process can take longer than developers might think, but that's not the only reason why voice production firms urge studios to reach out as early as possible. In fact, getting voice

actors on board at the start can help shape the game itself.

"The biggest mistake a developer can make is to outsource casting and recording when the script is ready," says Estdale. "By that time key factors that contribute massively to the quality of the final results are already lost.

"Cast as early as soon as ideas for your characters are forming. If a character's voice is in place, it empowers a unified clarity of vision for the character. Voice in place helps focus the design, the writing and animation and, ultimately, fleshes out much stronger characters."

As soon as they're in discussions with these service providers, developers need to think about more than just how they want the voice acting to sound, says Cutting.

"There's a lot of stuff you can talk about – not just script and actor, but how you want to record, what the style of recording is, how the lines are working in game, what speech systems are in game, what is the dialogue doing, and so on," she explains.



The rising bar of in-game voice acting quality means that poor performances are more noticeable than ever, says Ben Ryalls of Side

same time, opting for motion or performance capture can help put them in the shoes of your characters.

"With technology evolving and more people using motion capture, it is becoming more important on the voice element being spot on and syncing with characters," says Brewer. "Many studios like to use the same actor for

link the takes with a database," suggests Cutting. "Scripts for games are not always locked. They can be very fluid, as when speech is implemented it might not work, so lines are changed or re-written. A database that clearly shows recorded, revised and deleted lines is super important."

quality of the writing and great writers have always been around."

It's not just the script that matters. Actors need to know the words beyond the words: lore, backstory, personality, motivations. As with so many aspects of development, context is king.

"Get assets to us for prep before the recording session," Ryalls urges. "It can be character bios for casting, dramatic and emotional scripts for auditions, videos and story overviews. The more our team can prepare and be invested in your story, the better job we're all going to do.

"The same goes for the actors – the more time they have to read through their materials, the more committed to their character and performance they're going to be."

Voice production firms will often go to great lengths to ensure their teams are fully invested in the stories developers are trying to tell. Side, for example, assigned the same production manager and lead voice director to *The Witcher 2, III* and the recent *Blood & Wine* expansion in order to guarantee consistency.

Estdale concludes: "It doesn't matter whether you have the best actor in the world – if the context is wrong, the performance is wrong.

"Visual and sonic cues during recording are much stronger than written notes in a script or the spoken word of the director, as they enable the actor to live in the moment. And the moment will be right for the game."

Voice acting has come on in leaps and bounds. It furthers our medium – but only if the dialogue is right. As Cutting points out: without voice acting, *Thomas Was Alone* is just another puzzle game. ■



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The biggest mistake a dev can make is to outsource casting and recording when the script is ready.

Mark Estdale, OMUK

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If you work directly with an actor, make sure they have a broadcast-quality studio.

Posy Brewer



Brewer adds that experimenting with how actors perform their lines can also help find unexpected levels of quality: "Push them and ask them to try as many ways recording the lines to achieve what you want. Sometimes improvising can help develop a character."

Finding ways to get the actors together in order to feed off each other's performance can go some way to improving your game's dialogue. In addition to having them record at the

both motion capture and voicing. It's always right to get the best quality for any production and use true voice actors practised in the specialist technique of voice acting."

Although motion capture tech has advanced significantly over the last few years, delivering realistic performances and celebrity likenesses, there are still tools and pipelines that need refining.

"The biggest improvement could be the toolset to record the actor and

IT'S IN THE SCRIPT

Hiring professional voice actors and production firms is all well and good, but they entirely depend on developers – and the material provided.

"Without doubt the most important thing is the writing," says Estdale. "Everything else is secondary. If it's a turd it doesn't matter how you record and what actors you hire.

"The quality of voice acting is improving but it's always down to the

KEY RELEASE

FMOD.IO

Firelight Technologies has launched what it claims is the first sound library integrated in a professional-level audio tool, in the form of Fmod.io. CEO Brett Paterson runs through the news he hopes devs want to hear

The vast majority of developers are skilled at programming, but considerably fewer are trained in the art of audio creation. So what happens when you need to make your game's soundscape pop quickly, and don't have access to an artist?

One option is to go trawling through sound libraries, spending hours seeking out the perfect ready-made asset that's both high-quality enough and the ideal fit for your title. Hardly the best choice when trying to rapidly prototype ideas, or for solo coders lacking the budget for an audio expert.

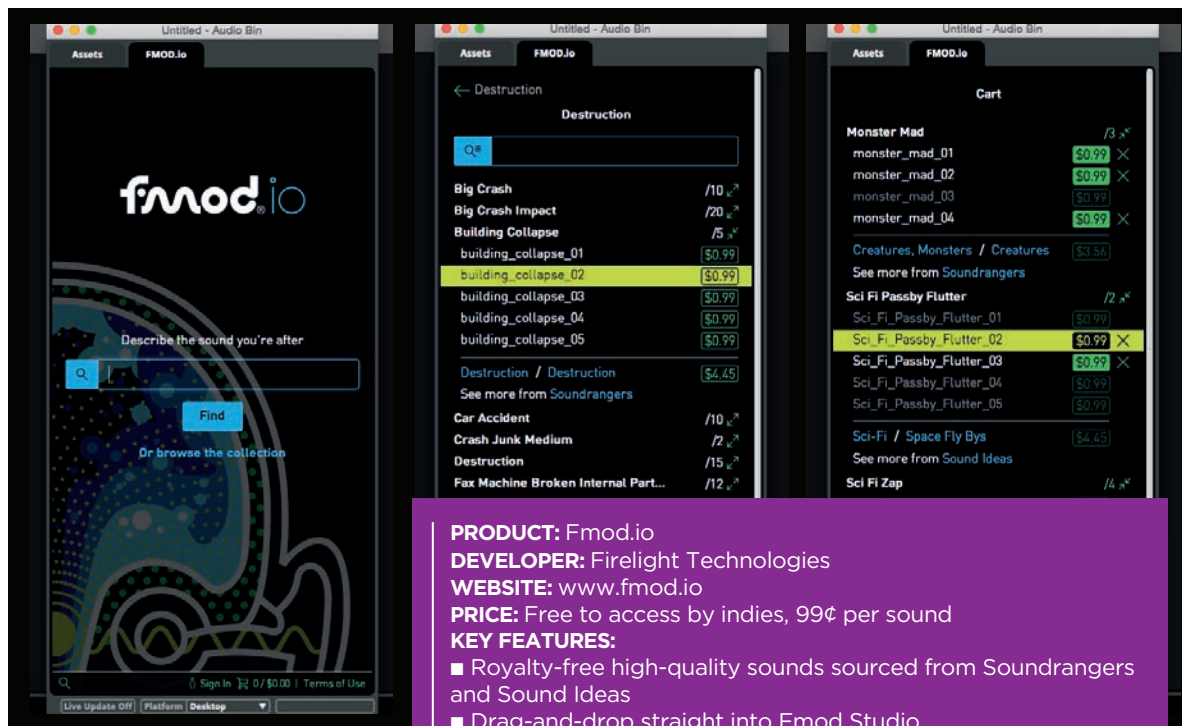
In steps Firelight Technologies, best known for its Fmod Studio audio editing suite. The tools firm has launched Fmod.io, a full sound library comprised of assets sourced from Soundrangers and Sound Ideas that is built into its namesake.

"Fmod.io gives developers immediate access to an extensive sound library from within Fmod Studio, making game audio implementation easier than it's ever been before," CEO Brett Paterson explains.

"Instead of bulk sound packs, we give developers the ability to buy just what they need, when they need it, at a good price. For many indies, small devs and students it is not always practical to have access to an expert sound designer. With Fmod.io and Fmod Studio, anyone can make games that sound great."

Firelight claims Fmod.io is the first such library to be included within an audio tools suite. Existing users just load up the search box, find the royalty-free sound they need, drag-and-drop it straight into Fmod Studio for any editing and then insert it into their game engine of choice, including Fmod-integrated platforms such as Unreal and Unity.

"There are many ways to access sound libraries today but we think that developers will benefit from having Fmod.io so well integrated into the content creation tool," Paterson



PRODUCT: Fmod.io

DEVELOPER: Firelight Technologies

WEBSITE: www.fmod.io

PRICE: Free to access by indies, 99¢ per sound

KEY FEATURES:

- Royalty-free high-quality sounds sourced from Soundrangers and Sound Ideas
- Drag-and-drop straight into Fmod Studio
- Unlimited use for 99¢ per asset
- All sounds are game- and VR-ready

praises. "Being able to drag and drop from Fmod.io straight into the project is unique and so is having all the sounds stored in the cloud – accessible at anytime, for any project, from anywhere. The ability to hear a full preview and buy individually at this price point are key benefits, as well."

I NEED A DOLLAR

Fmod Studio – and, therefore, Fmod.io – is free for indies and small teams with budgets under \$100,000 to use.

From there, each sound file is 99 cents – and can be used on as many projects as the dev desires.

"We wanted the pricing to be simple and straightforward," explains

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It's easy to waste a lot of time and effort searching online for free sounds.

Brett Paterson

Paterson. "It's easy to waste a lot of time and effort searching online for free sounds, or by buying several bulk packs of sounds that you hope contain the sounds you need.

"We wanted developers to be able to focus on being creative. Now they can find the sounds they want and get them into their game as quickly as possible."

Obviously, the resource isn't limited to shoestring creators. Among the bigger names to have utilised Fmod Studio are Telltale, Harmonix, Avalanche Studios and Turn 10, in games including *The Walking Dead*, *Rock Band 4*, *Just Cause 3* and *Forza 6*.

"Double Fine used Fmod Studio for *Day of The Tentacle*, specifically to port iMuse – a pioneering interactive music system for games," Paterson recalls.

"We know of some triple-A creators using different tools and engines for fast prototyping. Fmod.io is a great solution for teams like these, developing concepts on a tight schedule."

ANOTHER DIMENSION

The way that interactive audio is being implemented by developers is evolving.

Key among this change is the increasing influence of virtual reality on game design. Fmod.io embraces the extra immersion of VR by ensuring all of its sounds are ready for the spatial audio requirements of virtual reality experiences.

"One of the main developments in this latest release is the support for an object-based workflow ideal for immersive 3D experiences such as VR," Paterson adds.

"Fmod Studio 1.08 now features an object panner which gives developers the ability to design 3D experiences.

"The solution currently supports Playstation VR and Dolby Atmos but also forms the basis for potential future integration into all VR platforms. By using an object-based approach developers can author for various platforms with a common workflow." ■

DEVELOP'S TOP TIPS

AUDIO DESIGN

Masters of soundscapes speak out on how to make your game's audio music to players' ears

Don't be afraid to dive into subtractive synthesis to create your own SFX, get a decent field mic for others.

Byron Atkinson-Jones,
Xiotex Studios



A good sound implemented badly is a waste. Always sort out HOW things are played back – not just what.

Jaime Cross,
Team Junkfish

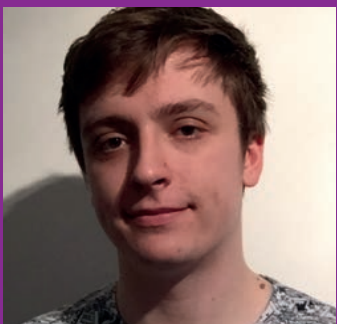
My top advice for VR audio is to think about what the player should hear to help guide their experience, instead of what they would hear without curation. Avoiding overstimulating or distracting the player.

Sally Kellaway,
Zero Latency/Fmod



Don't get patriotic about software. There's no need to be a fanboy for any DAW or WAV editor. Learn as much as you can and use what's right for the job.

Matt Lightbound,
ThinkSpace Education

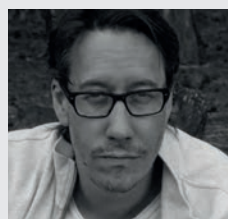


It sounds like a no-brainer but the sooner you start adding audio, the better. It will massively change the feel of your game.

Blazing Griffin

Sometimes the solution to a sound can be the most simple thing – don't complicate design where it doesn't need it.

Gavin Harrison, composer



Source is king; you can never have enough fresh material for use in your designs.

Chris Sweetman,
Sweet Justice

Invest in high-quality hardware – microphones, pre-amps and so on – as much as possible. Don't compromise with budget alternatives that fail to deliver on expectations and force you to replace prematurely.

James Stant,
Frontier Developments



My advice for VR audio is spread the layers of your designed SFX across the in-game object to add life and depth.

Ash Read, CCP



Layers are key to most great sounds. Different components from various sounds can create great stuff.

Sam Hughes,
The Sound Architect

Even if it's a lot of (fun) work, make your own sound effects. Adds so much personality.

@The_Stonecreek

It's all about the implementation – a bad mix will ruin everything.

Graeme Norgate,
composer



WHAT'S **NXT** FOR RUNESCAPE?

15 years after it originally hit computer screens, Jagex's free MMO has received its first major engine overhaul, bringing with it a sea of big changes. **Matthew Jarvis** checks in with technology manager Mathew Burnett and lead graphics developer David Gillman to see what's new in NXT

When I was nine years old, I was one of the writers for my middle school's student-run *RuneScape* magazine.

More than a decade on, I'm still writing about games, but I look vastly different: more facial hair, stretched limbs and a physique shaped more by beer than daily PE lessons. *RuneScape*, however, has achieved a Dorian Gray level of visual agelessness, looking much the same as it did when I first booted it up over dial-up. That is, until this year,

when Jagex decided to finally repaint its picture.

April marked the unveiling of NXT, Jagex's new engine for *RuneScape*, after more than two years of work.

"NXT began as an innovation team looking into the best ways for us to move forward," recalls technology manager Mathew Burnett. "As it became clear we were getting somewhere with the performance control that C++ can provide, the demo graduated into a project."

Replacing *RuneScape*'s existing Java-based client and a scrapped HTML5 version, NXT put a focus on improving performance and supporting a far wider breadth of player hardware to allow a higher fidelity of visuals. Improvements include longer draw distances, fully dynamic unified lighting and shadowing, industry standard post-processing, and real-time

reflection and refractions, especially in the MMO's water environments.

"Some of our adventurers are bringing the latest in gaming rigs, but some are still playing on the machine they had when we began this 15 years ago," Burnett reveals. "We set ourselves the goal of including 99 per cent of them and making sure we were giving a good level of performance to at least 95 per cent."

"It turns out that the aim of giving the best top-end performance and reaching the lowest common denominator is not that far away. While we added features for the best graphics cards, such as increasing the draw distance, better anti-aliasing and dynamic shadows, we also lowered the memory and power required for many of the existing capabilities. The result is a client that is designed to cover at least 12 years of hardware – if not a little more."

RUNE TO BREATHE

"With the Java client we'd pretty much hit saturation point in every way; there was no more room to manoeuvre," lead graphics developer David Gillham says of *RuneScape*'s aging foundation.

"The new C++ client gives us easier access to all the latest rendering

technologies, which we're now able to take advantage of with our new architecture, lighting and post-processing pipeline.

"The next round of graphical upgrades will include normal maps, larger textures, point light shadows, particle lighting, physically-based shading, improved volumetrics and further improved global illumination. We've also got plans to add support for the Vulkan rendering API to reduce driver CPU overhead even further."

It's this last point that stands out as one of the key achievements of NXT. By switching to a C++ base over *RuneScape*'s Java origins, Gillham and his team were able to make the most of modern hardware setups.

"With the new NXT client we're much less CPU-bound than with Java," Gillham explains. "We've significantly reduced draw calls which have a big CPU hit, especially if drivers are poorly implemented. Our dynamic geometry batching system is partly responsible for this, along with our new innovative dynamic hybrid occlusion culling system, meaning we're submitting much less to the GPU per world area than in Java. We're also making very good use of SSE where it counts and



The new NXT engine (left and above) boasts improved draw distances, water shaders and more compared to original *RuneScape* (far left)

our memory management is so much more efficient than in Java.

"We get much more bang for buck on the GPU as we've significantly reduced overdraw through better sorting, and our batching significantly reduces GPU context switching. On top of that, we've completely rewritten all our shaders from scratch and optimised the hell out of them."

TRANSITION TROUBLES

Adapting an engine from year to year can often be challenge enough for devs, as they race to stay ahead of the fast-evolving nature of gaming hardware while simultaneously dealing with the various quirks new tech can introduce to code. Such problems are exacerbated as time goes on, making Jagex's 15-year leap a journey fraught with hurdles – some of them self-inflicted.

"Like many success stories in our industry, *RuneScape* has evolved naturally rather than through rigorous planning," Burnett observes. "Throughout its 15 years we have changed many things and adapted many times. Sometimes this has been a sensible step forward, but on many occasions we have just worked around an existing problem."

"Much of our game content is designed in a manner that balanced out issues with our current tech. It might be a brightness is set many times higher than it should be or an item is rotated to the wrong angle to counter-act some long standing code error. Producing a new render engine designed to draw things 'correctly' that also supports this history makes for a difficult task."

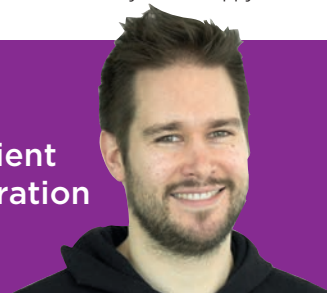
"Our aim was to produce as few compromises as possible and avoid the word 'hack' at all cost. We worked extremely hard with tone mapping and colour correction to make the result look and feel like the fantasy world our players have grown to love."

Changing a game's engine doesn't just affect the way it looks – it can also have knock-on effects on gameplay elements such as traversal and combat. Burnett explains how his team retained the core 'feel' of *RuneScape*.



With *RuneScape*'s Java client we'd pretty much hit saturation point in every way.

David Gillman, Jagex



"We are fortunate in some respects that our client doesn't control the gameplay," he says. "All the logic is controlled at the server end. However, the display of what is going on and when things happen has been rebuilt from the ground up. It took careful work and much testing to ensure that the same 'feel' is there."

"That said, there are plenty of places where a careful side-by-side comparison will show things slightly different. Where this is critical we look to adapt the content, rather than the code, to ensure it works as it should. We have discovered a few parts of the animations that worked by accident rather than design. As we grow into our new client we will now have a platform to resolve those issues."

OLD GAME, NEW ENGINE

With players investing hundreds of hours in MMOs such as *RuneScape*, making any change – no matter how minor – can divide the audience, as Blizzard has experienced with fan-run 'vanilla' servers for *World of Warcraft*. Given the transformative effect of NXT, how did Jagex ensure that as many fans as possible would be happy with the new engine?

"Our aim is to provide a client where every player believes they have a better

experience," Burnett responds. "We are going to do our best to bring people over willingly and we have already seen a huge take-up. We release every week so it allows us to adapt as we go along to make sure everyone is happy."

"NXT is not a different game, just a new way to experience it. The content is the same. We worked hard to ensure that it matched the look of the Java client and kept a 'no textures' mode that some of our players still prefer."

"We have already been through our difficult game evolution; three years ago when we modernised a number of things in the game some of our players weren't comfortable with the change. So we have *RuneScape* as it was in 2007 as a separate active development. The two function as a family and, while *RuneScape* brings out NXT, we also keep adding to our alternate universe, Old School. Most players settle in one game or the other, but some float between them as new bits catch their attention."

THE RIGHT CLIENT

The NXT engine sees *RuneScape* align with the state of games today not only in looks, but also in philosophy. Gone is the

web-based client that was innovative in 2001, yet out-dated in 2016.

"We had been seeing a decline in browser play for quite a while," Burnett states. "Java applets are going out of fashion as a way of delivering web content with support increasingly being removed from browsers."

"This has allowed us to put our priority on the downloadable client. The combination of C++ and native access to system resources offers us much better control over performance."

But while NXT may be the next step for *RuneScape*, Jagex has no desire to completely sever ties with the game's history – or the platform that brought it to prominence.

"We built what we have so far with a browser offering in mind," reveals Burnett. "Our build pipeline allows us to compile the C++ through emscripten and produce a HTML5 client we can serve in a browser. What we have works, but the technology isn't quite there yet. It's going to take us some specific effort to ensure we can produce the performance we need to make this shippable."

"We will look carefully at whether the players want it but I wouldn't rule out a new browser offering from us down the road a little." ■



HEARD ABOUT

MIRROR'S
EDGE CATALYST

John Broomhall discusses the sound of Faith with EA DICE audio director James Slavin

For the respected DICE audio team, a second instalment of *Mirror's Edge* offered the chance and challenge to create yet more potentially award-winning sound. So what were their key targets for an audio upgrade?

We felt we could do a lot more; more memory, surface types, music, ambiances, more everything. Not for the sake of it, but to add aural diversity to the experience of exploring the city; different music, ambiances and spot sounds for different districts. For example, air con units rattle in rundown areas, whereas they'd hum in tune with the music in high-end areas.

We've also added more surface types to colour the player's journey through the world. We really wanted to bring the city to life while they free-roam; monorails and drones whizz above their head, trains and cars roar below and adverts echo between the two.

Some things we kept the same: the triumphant return of Solar Fields, for example. His music is part of the soul of *Mirror's Edge*.

Tell us about the creative process and team roles, and how you managed to avoid 'crunch'.

Individual ownership and creativity were vital. First, we created a sound design 'bible', setting out how, where and why things should play. Once we all knew what we wanted to do, we ran with it.

Playing on each other's natural strengths, we divided responsibilities into SFX, tech, music and speech. We swapped hats when necessary; having that ownership really helped everyone focus.

Early on, Olof Strömquist worked on a raycast and indoor/outdoor ambience/filtering system. It went through a few iterations, but enabled us to, on-the-fly and independent of geometry changes in the city, create a realistic reverb/reflection model. We sonically anchored the futuristic world by having locations behave as you'd expect in the real world.

Magnus Walterstad simultaneously worked on music design, re-arranging the original *Mirror's Edge* tracks at first, to test behaviors with a familiar palate.

Patrick Michalak worked on speech design for Faith and the AI, while I worked on the material selection for footsteps, combat impacts and UI design. Because we did a lot of this heavy lifting early on, we were able to react to changes and eventually mix the game three times.

How did you give life to Faith and her environment using audio?

We did a few things with breathing, foley, emotes and footsteps.

Faith's lungs are her 'engines', so we kept the breathing rhythmic until she got damaged in combat. Then her punch and impact emotes transformed into coughs and splutters – plus, we added panic breathing as she fell to her death. We told the story of the world from the feet up.

Each surface type you encounter describes a little of where you are; squeaky polished glass and clean marble contrast greatly with corrugated metal and dirty concrete. One speaks of a high-end environment, the other is indicative of a rundown area. They also serve a more intimate purpose, as it's these things that give

Faith her friction, physicality and weight as she runs, scrapes, slides, jumps, lands and rolls through the world.

What about music implementation and function?

Where you have to race – time trials and runners' routes – we used distance-over-time as a parameter to build the music. For example, the longer you run unimpeded and keep your 'flow', the more the rhythmic elements of the track are introduced. Thus, you enjoy running.

If you miss a jump and end up hanging off a building, you lose your speed and the music responds by slowly removing the same beats that drove you forward – like a soft penalty.

You can get the beats back by picking yourself up and carrying on. It responds to your speed so should never play exactly the same twice. ■



John Broomhall is a game audio specialist creating and directing music, sound and dialogue
www.johnbroomhall.co.uk



BRAINHOLD'S ODYSSEY



Argentinian micro-studio Brainhold hopes to bring the striking visuals, quirky soundscapes and emotional punch of kids' cartoons and Japanese animation to its debut 2.5D platformer. In their first-ever interview, **Martin Ayguavella**, **Diego Sarmentero** and **Mauricio Dal Fabbro** chart the vivid world of *Rex Odyssey*

If you're hoping to make a splash with your debut game, it always helps to aim big.

That's the opening gambit of Brainhold Games, a three-man studio based in Argentina. Its first title, *Rex Odyssey*, is described as a virtual love letter to classic platformers, as well as iconic animation from TV and film.

"*Rex Odyssey* is really influenced by our own childhood memories, and parts of our adult lives, too," details art director Mauricio Dal Fabbro. "It's based on our love of the new wave of cartoons like *Adventure Time* and *Regular Show*. We're inspired by the emotional stories and powerful sights of the great Hayao Miyazaki and Studio Ghibli universe, too."

To recreate the unforgettable experiences of their stimuli – without simply plagiarising them – Dal Fabbro and his team aimed to, as lead programmer Diego Sarmentero explains, "include those special moments, but from a new point of view".

PAINTING WITH NUMBERS

When it came to selecting the best engine to paint *Rex Odyssey's* vibrant visuals, Brainhold went with software that reflected the approachable and welcoming nature of its game.

"We started with Unity 4 free," recalls Sarmentero. "The documentation is great and the resources in the Asset Store let you try new ideas really quick but, mostly, the community of people developing their own games with this tool is something that is really helpful. All the forums and blogs dedicated to the tool and people sharing their knowledge and experience become invaluable, especially when you are an indie."

Dal Fabbro adds his own experience of targeting a visual style comparable



Rex Odyssey's aesthetic is inspired by Western and Japanese animation from TV and film, such as *Adventure Time* and Studio Ghibli

to the expressive hand-drawn art of Ghibli and *Adventure Time*.

"The workflow between my main 3D software and Unity makes creating and importing assets really quick," he says. "You can make fast prototypes to test things, try a few simple scripts without bothering the programmer to see if it will work as intended and the final integration is almost effortless."

but Unity – especially the Asset Store – gives you plenty of tools to make the whole process a little easier."

MERRY MELODIES

Brainhold also wanted *Rex Odyssey* to sound as distinctive as it looks.

When it came to designing sound effects for the world, lead audio designer Martin Ayguavella was unable to rely on already established audio concepts.

"When making any type of game that needs realistic audio feedback you are bound to make sounds that represent real-world materials," he details. "Whereas in a fantasy world like *Rex* I try to blend what you would expect to hear from a certain element with classic platformer sounds to get a mixture of both worlds. It's not only about the difference in genre, but also about the overall mood of the game."

"I try to not use pre-recorded samples for my music and SFX. I make my own effects using modular synthesis software and hardware, plus lots of layering and tweaking."

"For the music, I make mockups on GarageBand and BeatMaker. Once it's approved, I go to my DAW to go full production, then to Fmod Studio in order to create non-linear soundscapes and music that adapts to the narrative."

All of this, Ayguavella says, contributes to *Rex Odyssey's* ability to absorb its influences but produce something fresh: "Every time you play you'll get a different sonic and visual experience." ■

“Audio is not only about the difference in genre, but also about the overall mood of the game.”

Martin Ayguavella

"There's a lot of fine tweaks to do in order to achieve the final aesthetic of the level the way I pictured it in my head,



SHIP JUST GOT REAL

Angry Birds, Dark Souls and Battlefield may not seem like the obvious inspirations for an ultra-realistic sailing simulator, yet these are the proven mechanics in which Naval Action grounds its complex historical accuracy. Game Labs captain Maxim Zasov teaches **Matthew Jarvis** the ropes

In comparison to their aerial and automobile siblings, naval simulators have remained comparatively uncharted territory.

Players have been able to weigh anchor in games as diverse as *Assassin's Creed IV: Black Flag*, *The Legend of Zelda: Wind Waker* and *Sid Meier's Pirates*, yet very few titles have truly captured the challenge of riding high over the waves, instead favouring a simplified implementation.

It's a problem that Russian studio Game Labs and its CEO, Maxim Zasov, set out to solve.

"One of my partners and I played *Pirates of the Burning Sea* a lot," Zasov reminisces. "We did not like some of the elements in the game and decided we could do better."

"We also wanted to experiment with several old school mechanics like a complete lack of handholding and limited markers. In addition to that, we wanted to convey the experience the Age of Sail captain could feel at that time, including the sense of danger and loneliness at sea during long journeys."

The result was *Naval Action*, a nautical warfare title boasting photorealistic recreations of historical vessels, true-to-life physics and weather-afflicted oceans.

While players are tasked with managing the multifaceted aspects of seafaring, Game Labs took steps to keep its complicated gameplay as accessible as possible – finding inspiration in unexpected places.

"It's easy to stand on the shoulders of giants like *Dark Souls*, who don't show everything and expect players to learn complex things by trial and error," Zasov says. "A lot of players enjoy learning complex mechanics



Naval Action's complex combat is made accessible thanks to inspiration from first-person shooters

themselves and receive immense satisfaction when they find something new that they did not know.

"There is one trick that we use a lot to help players uncover the mechanics themselves. We try to build complex mechanics around generally adopted practices. WASD is used for sailing, using presets to increase the sail area. Shooting is built around universally-loved first-person shooter and *Angry Birds* mechanics."

BOAT OUT OF HULL

With Game Labs setting out to offer such a high level of attention to detail in *Naval Action*, Zasov says that the developer essentially started from scratch when it came to design.

"We used Unity and wrote our own custom server," he details. "Sailing ships require a lot of custom things, including custom physics, and there were no solutions that could satisfy our backend requirements so we wrote everything ourselves."

Naval Action's ship models are as close to pixel-perfect recreations of their real-life twins as the simulation genre has ever seen. As they are bombarded by cannon balls, battered

by waves and rammed by enemy boats, they spring leaks, splinter, demast and burn like the real thing, too.

"The reality is simple: virtual creations, including ships, will never match the real-life counterparts," Zasov admits. "But vehicles just need to match the realistic mental model. We are not creating a historical photograph – we are creating a photograph of a photograph."

“We try to build complex mechanics around generally adopted practices, such as WASD.”

Maxim Zasov, Game Labs

"Things that are important but too complex are automated with an option to override the automation. For example, sail management can be fully automated by use of the auto-skipper. But we give players two tools to override the automation: turning yards to control side force, backing force and wind power, plus depowering jibs and staysails to

control heel. This allows the player to extract extra performance from their vessel when it is needed."

The balance between realism and accessibility extends to *Naval Action's* combat, which sees up to 50 players take to the water and attempt to send each other to Davy Jones' Locker.

"We consider gunnery very important and give player a wealth of options," Zasov states. "They must choose the elevation of the gun using a mouse for a tracking shot – a mechanic we borrowed from *Angry Birds*. If a tracking shot hits they can unleash the whole broadside. We give the player options to pick convergence and how guns are fired: from bow to stern or vice versa, or randomly."

"Gunplay looks similar to a mix of a sniper gameplay in *Battlefield 3* and *4* where you snipe with tracking shot and then unleash the machine gun volley of all guns – up to 69 on a Santissima Trinidad."

HAVING A (CANNON) BALL

As any sailor knows (we assume), the greatest danger on the high seas is Mother Nature itself. This is no different for virtual buccaneers, as *Naval Action's* wind and physics models affect manoeuvrability, while its dynamic

Weather and waves can dynamically affect ships, with each vessel faring differently based on shape and material



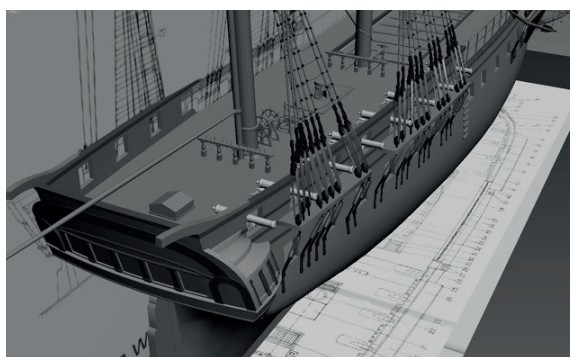
water simulation can often be the deciding factor in ship-on-ship clashes.

"Waves affect the gameplay," confirms Zasov. "Roll and pitch can affect ship position and expose vulnerable parts of the vessel, or alternatively block the shot. That is why our water is server-based and has to be the same for all 50 players."

If that wasn't enough, players will be armed to the gills with 18th-century armaments, from short-range carronades to devastating mortars. That is, if they can hit anything.

"Cannonballs use custom written ballistics, which just uses basic math," Zasov explains. "You have a projectile that flies at certain speed, has gravity drop off and carries certain penetration that drops off based on distance-energy loss. On hit, we measure the angle of wood planking to calculate the effective armour, which is higher at very low angles of hit."

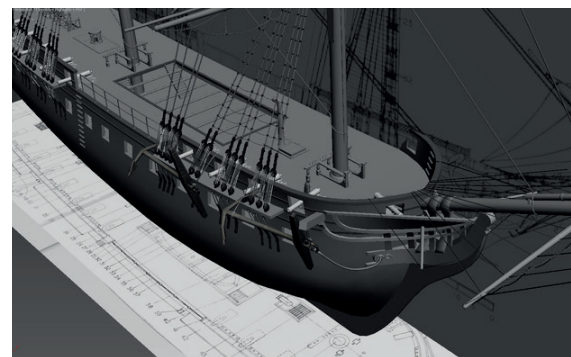
"We use exact ship shape colliders, thus ships hulls that have curved



forms, especially French ship designs, can ricochet more. We also take into account wood type – for example, live oak is much stronger than fir.

"On penetration we do not kill the cannonball. It can penetrate the hull, hit the carriage, penetrate the carriage, hit the crew on its path to the opposite side of the ship and penetrate the other side. Every hit reduces effective penetration depending on the internal part type."

"If the ship hull has an opening – for example, an open gun port – then the



ball can theoretically fly through the ports, if the angle was right, and hit another ship on its way."

EARNING YOUR SEA LEGS

With a multitude of intricate elements to manage, it might seem that *Naval Action*'s audience will forever be limited to a niche of hardcore simulation enthusiasts.

Yet, if the response to the game's spurning of a traditional mini-map, forcing players to navigate between

almost 400 ports using little more than a compass, landmarks and their wit, is anything to go by, it might inspire a flood of landlubbers to set sail.

"We found over time that players learn the surroundings in just a week and can find where they are just on feel," Zasov reveals. "If you sail southwest you can never get lost in the Caribbean, you will always find land."

"The compass helps, but a lot of players stop using it eventually." ■

SERVICES SPOTLIGHT

FIRETEAM

We find out how the back-end services provider ensures major connected titles like *Gears of War 4* and *Dirty Bomb* never go offline

In today's gaming market the vast majority of titles require an internet connection, whether for multiplayer or authentication purposes. But this brings with it a potential nightmare scenario.

"Imagine you've built and launched an amazing game and the service suddenly goes down," says Fireteam's chief technology officer Arnout van Meer. "Players can't login, matchmaking queues start going, quality drops and every minute you're losing revenue as your in-game payment systems fail."

"At Fireteam, we ensure that scenario never happens. We consult on, develop and host world-class, bullet-proof and highly scalable online services for some of the biggest studios in the industry."

MAKING A SPLASH

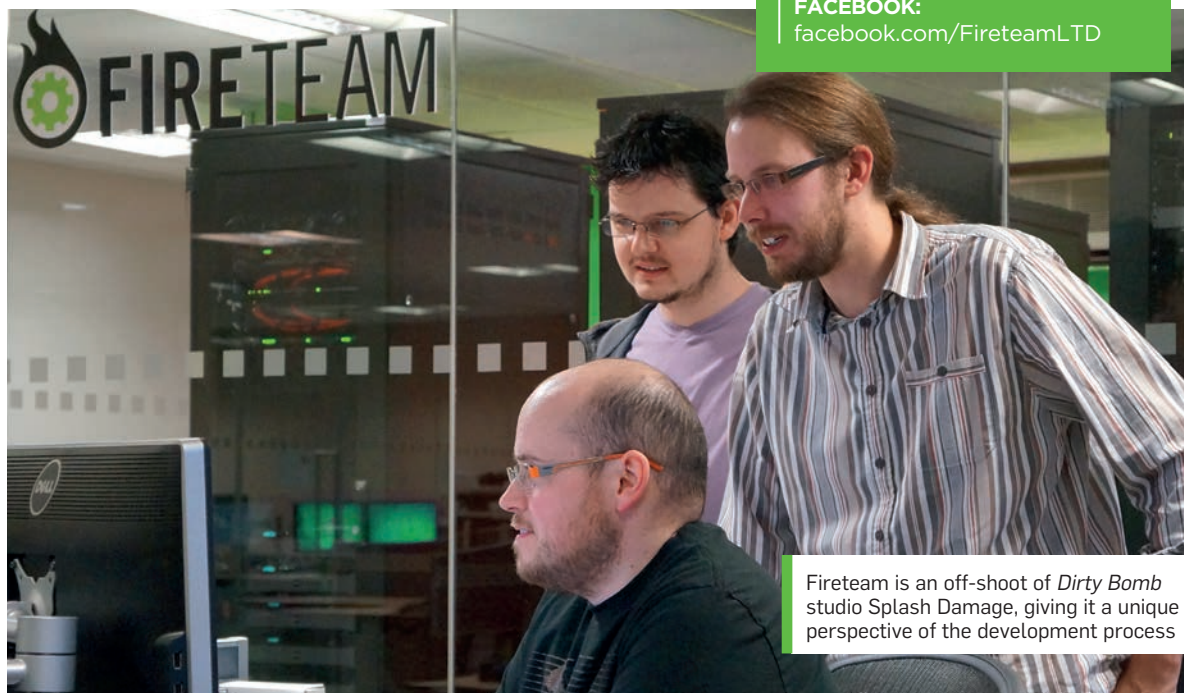
Founded in 2011, Fireteam is actually an off-shoot of UK developer Splash Damage.

In the last five years, its services have kept games running for more than 20 million players – and not just Splash Damage's own titles like *Dirty Bomb*, but also major blockbusters such as *Gears of War: Ultimate Edition*, *Halo: Master Chief Collection* and *Batman: Arkham Origins*.

More recently, the firm has worked with growing studio Edge Case Games on sci-fi title *Fractured Space* and is currently collaborating with The Coalition on *Gears of War 4*.

The close ties to Splash Damage gives Fireteam an advantage over other back-end service providers, as van Meer points out: "We have a very unique insight into the needs of game development teams, as well as how they interact with our platform and services."

"This insight and experience allows us to tailor our deep level of support to meet the needs of our other clients to always ensure that they view us as an integral part of their development team."



OVERVIEW: Back-end service provider for all forms of online games

LOCATION: Bromley, UK

WEBSITE: www.fireteam.net

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TEL: +44 (0) 208 313 0538

TWITTER: @FireteamLTD

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facebook.com/FireteamLTD

Fireteam is an off-shoot of *Dirty Bomb* studio Splash Damage, giving it a unique perspective of the development process

Central to Fireteam's offering is Fireline, the scalable platform that powers the company's suite of back-end services. Currently in beta while the team continues to improve the technology, Fireteam hopes to launch it later this year and reach a wider variety of developers.

SET THE WORLD ON FIRE

In fact, having kept a low profile up to this point, Fireteam is keen to put itself out there and meet more studios that might benefit from its expertise.

"Given our focus on a very deep level of support and integration with the development team, we tend to work with only a small group of developers and publishers at any one time," says van Meer when asked about ideal partnerships.

"We don't have a hard and fast rule about the type of developer we work with, but they all have a single thing in common: they need to scale massively. That could be a game that has already launched and is having trouble meeting demand, or it could be a game that has huge data complexity that needs to ensure it can scale when it launches."

"Nothing scares us – the bigger the problem, the more exciting it is."

"Our team of experts can provide expertise, advice and development of all aspects of online services, from client integration through fully scalable matchmaking to completely bespoke back-end server functionality."



“Even single-player games utilise cloud saves, social features and in-game storefronts.”

Arnout van Meer, Fireteam

"As a company, we have a huge amount of experience in both online and micro-transaction-based game

economies, and help our clients in both design and implementation, as well as ensuring that all games we support launch and scale flawlessly."

ALWAYS ONLINE

As back-end infrastructure becomes increasingly important to almost every game – not just on mobile, but console and PC as well – van Meer is confident that companies like Fireteam can only expect demand for their skills to rise.

"Online services are the lifeblood of games," he says. "If they fail, then players will immediately be impacted."

"Now, even single-player games utilise authentication, cloud saves, social features, item drops and in-game storefronts. The impact on the player experience of any of these services failing can be huge."

"The services powering this functionality can be complex and require bullet-proof reliability, as well as the ability to scale massively and instantly. It's not only expensive to build these as part of a game's development, but it often requires specialist knowledge and operations teams to make sure that they keep working, long after the game has launched." ■



80 REASONS WHY E3 WAS **UNREAL**

From blockbuster sequels to a parade of new intellectual property, Epic reveals how Unreal Engine powered 80 games at this year's E3 and speaks to some of the creators working with the tool

As it tends to do year in and year out, E3 has proven yet again to be a global stage for industry announcements, blockbuster reveals and games that unexpectedly win over the hearts and minds of players.

While the range of content on offer and the diversity in themes brought a variety of experiences to the show, many projects had one major thing in common: Unreal Engine technology.

In fact, 80 titles that were either announced, available for hands-on play, demonstrated during press conferences or viewed in or around the show floor were built using Unreal Engine.

This line-up included impressive titles such as The Coalition's *Gears of War 4*, which opened the Xbox media briefing, and *Days Gone*, SIE Bend Studio's newly-announced title that closed out the PlayStation press conference.

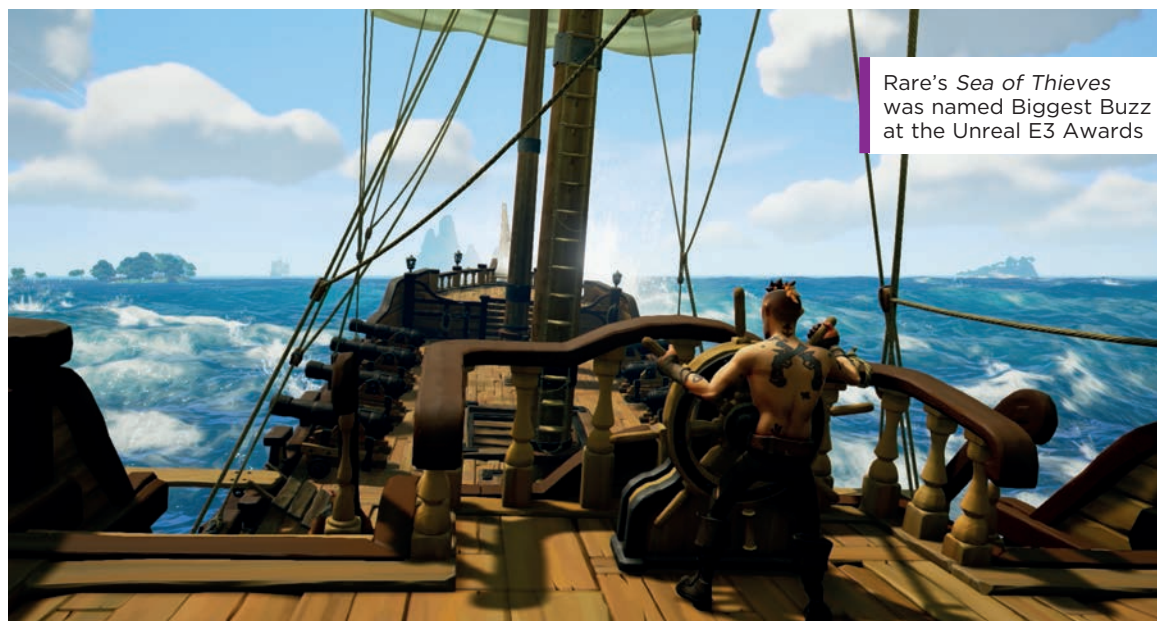
In addition, breakouts like *We Happy Few*, *Tethered*, *Absolver*, *Farpaint* and *Raw Data* have joined highly-anticipated games such as *Sea of Thieves*, *LawBreakers* and *Abzu* in bringing their vision to life with Unreal and being a part of the rapidly growing community that is embracing the engine.

"We couldn't have done this in anything other than Unreal," explains Sam Abbott, COO at *We Happy Few* creator Compulsion Games. "I just can't believe how fast I can prototype and get things done."

FAST WORK

It turns out that speed matters for most developers as the rush to produce not only the game itself, but also a meaningful demonstration for E3, can stress a studio if they're not effective and efficient with their time.

"It was a really easy decision for us, actually," says Alan McDermott,



Rare's *Sea of Thieves* was named Biggest Buzz at the Unreal E3 Awards

whose Secret Sorcery Towers team is building PSVR launch title *Tethered*.

"We played around with other engines early on to try and find the best fit for us, but Unreal came out on top without any sweat whatsoever.

“

There's a lot of exploration to get *Days Gone* right – Unreal gave us a huge running start.

Chris Reese, Sony Bend

"The best thing about it for us was the prototyping phase. We wanted to fail fast and make sure that we made our mistakes quickly.

"Unreal Engine 4 removed all of the unnecessary questions about how we were going to build an engine, do graphics, render things; we didn't have to worry about any of that. Unreal Engine

unlocked all of that straight out of the box, allowing us to really focus on the creative side of things which, as a really small indie team – there's only 14 of us – means you get the ideas across really quickly and make good decisions about what things are worth pursuing or not."

BEND'S NEW DAYS

While exploring ideas is essential to new game concepts, the ability to quickly iterate is equally as important for studios looking to deliver show-stopping demos. Such was the case with Sony Bend's *Days Gone*, which ended the PlayStation press event with a stunning demo.

"This is the first time that we've actually taken on a different engine; all of the other engines we've used before have been our proprietary stuff that we've built in-house," admits Bend director Christopher Reese.

Why switch to Unreal, then?

"Primarily, it's an opportunity with the tools that Unreal has for the pipeline that empower our designers and artists to prototype," Reese

explains. "It's a new IP so there's a lot of exploration to get the concepts, theme and gameplay right – Unreal just gave us a huge running start."

Naturally, Reese's team is, ahem, bending UE4 to achieve the scenes that *Days Gone* presents, while working to make it a unique and masterful experience.

"We're using a lot of the systems that are in Unreal Engine 4 and we've also modified it for the specific needs of the IP, but it's a great engine that has a lot of excellent extensibility that allows us to do that."

In addition to the massive presence that Unreal-powered games took up at the show, Epic once again presented the annual Unreal E3 Awards.

A neutral editorial staff selected all nominees and the winners, which included Rare's *Sea of Thieves* (Biggest Buzz) and Tarsier Studios' *Statik* (Most Immersive VR).

To read more about the awards and everything Unreal at E3, visit unrealengine.com/blog. ■

The **develop** Post-Mortem DEVICE 6

Simogo's seminal mobile adventure garnered widespread acclaim with its audio-centric structure and stylish design. **James Batchelor** finds out more about the tech and creative decisions behind this mobile hit

The first bite is with the eye, as the saying goes, but in some cases it's what you hear that you remember the most.

In the case of *Device 6*, the mobile text-based adventure game from acclaimed Swedish developer Simogo, the audio became instrumental in the title's success, giving players an experience they would be unable to complete without sound.

Interestingly, however, creating an audio-centric experience was not actually the objective. Instead, the clean presentation of the game meant Simogo could not depend on visual cues to guide players in the right direction.

"Because so much of the game is so minimalistic in its presentation, we had to rely a lot on suggesting things rather than showing them," explains studio co-founder Simon Flesser. "Having so much of the game suggested to players through the audio almost became a necessity."

Looking back on the development of *Device 6*, Flesser described the experience as "an incredibly, and unusually, smooth project", with little in the way of major challenges.

"The fact that none of us are native English speakers, and had to create a game so heavily based on text in English was probably the biggest obstacle," he adds.

Part of the reason for the smooth development cycle was Simogo's previous title *Year Walk*, released earlier that year. Simogo learned so

much from developing this adventure title that it essentially laid the foundation for much of *Device 6*.

“

Audio is underused on all platforms – especially on mobile, where people completely turn off sound.

Simon Flesser, Simogo

"Many interactions are similar to those in *Year Walk*, which was also a very audio-centric game," says Flesser. "We could use a lot of the knowledge, as well as the actual code and systems, from that project. So we didn't have any huge challenges because we didn't go in entirely blank."

POWERING THE DEVICE

Like *Year Walk* before it, *Device 6* was built in Unity – an engine that has proven to be accessible and adaptable for many an ambitious indie project. The team also ended up using Maya, as the game proved to have more 3D elements than initially expected.

While Unity has been used to build countless successful mobile game, few were as reliant on sound and music as Simogo's project, so the team found themselves having to improvise more solutions.

"The way audio works on mobile has not always been optimal," Flesser explains, "so we've had to write a lot of our own audio things to make sure everything is doing what it should."

"Audio-wise, we are quite primitive to be honest. Outside of Adobe Audition, I did most of the audio using Audacity and an old tracker called Madtracker 2 – for which I bought a license in the late '90s. I still use it today, and I really like designing sounds in music tracker software."

Simogo is famously a very small team, and so ended up bringing in some external expertise to ensure *Device 6* matched up to their original vision.

Year Walk composer Daniel Olsén returned to create the music, which plays a key role in the game, while regular collaborator Jonathan Eng wrote a song.

Eng even appear as one of the characters – and he's not the only one.

"There's quite a few other game developers that recorded tiny snippets of voice-overs for us to use in the game," says Flesser. "We also had a lot of friends helping us with proof-reading."

NOW HEAR THIS

Audio design is perhaps *Device 6*'s greatest accomplishment. Sound effects complement the text, emphasising the actions described in each passage and drawing players



into the narrative. Audio cues indicate whether players are making progress with a puzzle, while voice-overs provide clues to later puzzles.

While other studios pride themselves on recreating authentic sounds – such as racing devs recording real engines – Simogo is proud of how inventive it was when finding the sounds it needed for the game.

"I think a lot of audio designers tend to be too 'literal'," says Flesser. "The more important the audio is, the more it has to 'feel' right rather than 'being' right.

"In *Device 6*, we used a lot of unexpected audio sources to get the vibe across. There's a lot of old fax machines, calculators and so on that we use – type of sounds that fit with the technology theme.

"I also think it's fun and useful to sometimes make some things produce sounds that they logically shouldn't, to add more interaction feedback."

UNMISSABLE AUDIO

While *Device 6* does include a soundtrack, Flesser and his team were careful to ensure it remained subtle in order to avoid distracting the player from the other audio clues.

"I would also urge designers to not overuse music," he says. "If there's always music, it can become less impactful when used."

While many mobile titles now come with the disclaimer "best enjoyed with headphones", Simogo took things one step further by ensuring that gamers would be unable to progress with their smart device muted.

Arguably this could be seen as a move to emphasise how underused audio can be on mobile titles, but Flesser believes it goes further than that.

"I think audio is underused on all platforms – although maybe especially on mobile, where people will tend to listen to music or podcasts and completely turn off sound while playing games," he says.

"You can't complete some puzzles with sound turned off in *Device 6*, so it's required. But even when it's not required, I get sad when people don't play attention to the sound design in games. To me it's not only as important as any visuals, it's also a very important part of interaction feedback." ■

Anna glanced at the paintings as she walked. There was a faint glow behind the door.



Anna was facing a huge steel door, that looked decidedly out of place and more fitting to some kind of bomb shelter. In front of it was a screen apparently displaying the output of a security camera. With no handle, she pushed herself against the door, even though she knew it would not budge.

She took a few steps back and turned around.

q6

Try to picture someone looking at you from a window. Who is it?

a. A friend

b. A stranger

c. Yourself

T//PHASE 01D4 T//PLAYER P249 HAT TP.1

Radio?



NORTHWEST GUEST ROOM

She had never played with dolls. Yet it was the first thing on Anna's mind when she came to. A rather unpleasant doll, too. A strange thing to have on one's

SMART DEVICE

While most of the praise for *Device 6* stems from its audio and narrative, Simogo's Simon Flesser is justifiably proud of the minimalist visual design as well.

"Because the game riffs so much on '60s culture, I looked for inspiration in that era," he explains. "Mostly album covers and graphical design.

"I also looked quite a lot at design for electronic manuals and that type of thing, as the game is so heavily centered around our relation to technology.

"Thankfully, because the visuals are so minimalistic, there wasn't much fear of it distracting from the audio experience."



Simogo's Flesser says many audio designers are too 'literal', and says to focus on 'feel' rather than being 'right'

ASK AMIQUUS

Q

**What programme languages are the most attractive when hiring?
I work with at least two different ones in my current studio, but more and more I am feeling I would need to learn more to make the next step in my career.**

Even as we move through the fourth decade of games software development, the number one skill continues to be the 35-year-old language of C++.

The majority of console and PC games still fundamentally rely on C++ and critically it underpins the most complex and demanding game engines available, such as Unreal.

"Nothing that can handle complexity runs as fast as C++," said creator Bjarne Stroustrup back in 1979. Why has it not been usurped since then?

One of the beauties of C++ is that it is flexible, enabling you to write additional features into an existing engine, game or toolset at the lowest level, providing the flexibility of a high-level language with the power, efficiency and level of control more associated with low-level languages such as assembly.

As a core object-oriented language, C++ has the power to apply hugely complex programming demands balanced with more efficiency and speed than other high level OOP languages out there. It's a win-win and these features make C++ skills enormously attractive for developers to hire.

When making career choices it's worth bearing in mind that some languages are easier than others.



Getting started in C++ can seem like an uphill climb; it's so intricate it's challenging, no low-level systems are handled for you and precision is key. However, many other languages follow similar principles so once C++ is mastered, transferring to other languages can feel easier.

SHARP THINKING

Born of the same object-oriented principles inspired by the C and C++ family tree, C# has continued to rise in demand from employers.

When it comes to online and cloud technology, C++ and C# are pretty evenly matched, with the likes of Microsoft Azure utilising the agility and speed of its home language C#.

C# is also the basis of the Unity game engine. It is capable of creating physically-based visual features with rich and immersive visual content and, although it is yet to match the full

“

Once C++ is mastered, transferring to other languages can feel easier.

power of C++, C# within Unity has become extremely attractive when hiring today – not least because it is still relatively new, so experienced developers are harder to find.

Python has gained momentum because of its universality across staple tools and packages such as Max, Maya and Blender.

Its lighter and more readable syntax makes it much easier to pick up than the deeper languages, and nimble scalability increases its usefulness further for large- and small-scale development.

We also see studios opting for native mobile development specific to a given platform, primarily Objective C for iOS and Java for Android. On the non-native side, HTML5 skills are also attractive when building apps using standard web technologies that create cross-platform mobile applications.

Developers will be attracted to different skills depending on their choices of mobile strategy, so there isn't a 'one size fits all' solution.

If you are already working with one of the most in-demand programming languages in your current role, our advice is to keep evolving techniques, sharing your ideas and learning from other devs in the games community. Nothing will stop you from learning other languages in your spare time and knowing the emerging languages in the industry will help to keep you current.

If you're worried about not having the most desirable skills, ask for some training, learn what you can and produce personal projects to demonstrate you can cross into other languages with ease. ■



Liz Prince is business manager at Amiquus. Every month, she helps solve some of the trickier problems job seekers currently face in the games industry

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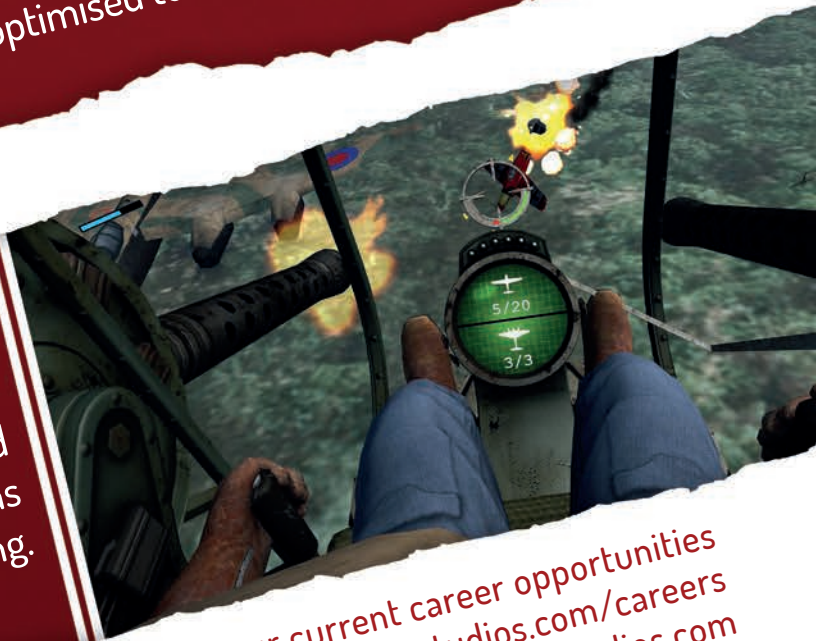
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